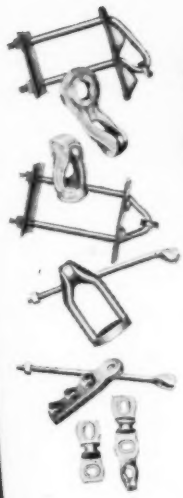
Telephony

build SECURITY into your lines



...with CHANCE GUY FIXTURES

Simplify guy attachment and improve line appearance with Chance Thimbleye Guying Fixtures. A combination for every requirement. Write for bulletin. Specify Chance "Thimbleye" on your orders.

A·B·CHANCE CO. CENTRALIA MISSOURI

Now-a-Days It's Fashionable for them to have Tails!

Nicopress OFFSET DEAD-ENDS Allow for Tail of Any Desired Length

No method of Dead-Ending communication lines can be 100% efficient unless it provides for the leaving of a "tail."

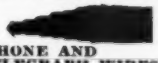
The Nicopress Offset Dead-End is designed so that the conductor itself can be pushed through the sleeve to form a tail of any desired length. This feature makes it very easy to attach reducing sleeves for bridle wires or line taps.

You'll find the Nicopress method unsurpassed for installing all your Dead-Ends. Write today for details and prices.

THE NATIONAL TELEPHONE SUPPLY CO.
5100 SUPERIOR AVENUE
CLEVELAND, OHIO

Canadian Mfr.—N. Slater Co., Ltd., Hamilton, Ont. Export Distributor — International Standard Electric Corp., New York, N. Y.

AMELECTRIC TELEPHONE CABLE



TELEPHONE AND TELEGRAPH WIRES
SWITCHBOARD CABLE
MAGNET WIRE

Kennecott Wire and Cable Company
Subsidiary of Kennecott Copper Corporation
PHILLIPSDALE, RHODE ISLAND
New York, 10 East 40th Street
Chicago, 140 South Dearborn Street
Cincinnati, Traction Building

LEICH SALES CORPORATION
Distributors

ACORN WIRE PRODUCTS

DROP WIRE · INTERIOR WIRES
"The Best"
222 W. Adams St., Chicago, Ill.
Telephone: Franklin 2931

We make more:
DIFFERENT, BETTER, Reasonably Priced, Telephone Directories than any other printer

R. R. Donnelley & Sons Company
350 E. 22nd St., Chicago

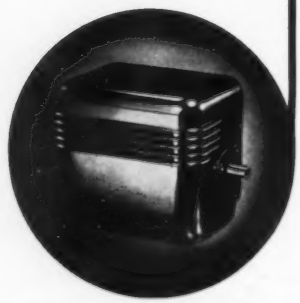
J. G. WRAY & CO.
Telephone Engineers

Specialists in Appraisals, Rate Surveys, Financial Investigations, Organization, and Operation of Telephone Companies.

3324 Bankers Bldg., Chicago

THE SWING *in* MAGNETO TELEPHONES *is to* LEICH'S *Convertible* SET

The No. 86 Complete Magneto Wall Set



The No. 86 Telephone Divided Into Desk Set and Generator Box

Sweeping the country like a popular song, Leich's new magneto handset is definitely a hit! Introduced less than three months ago, it is already the leader in the magneto telephone field.

The popularity of this new set is based on the following exclusive advantages (1) it is the only all-molded magneto wall handset (2) It is the only convertible wall or desk telephone (3) It is the most attractive magneto set ever made (4) It employs a proven transmitter and anti-sidetone circuit (5) It is priced low to fit present conditions in the magneto field.

Send for your copy of catalog sheet that gives full details and prices of this modern magneto telephone. Address Leich Sales Corporation, 222 West Adams Street, Chicago, Illinois.

Look to LEICH
For New Notes In Equipment

TELEPHONY, July 29, 1939. Volume 117, No. 5. Published every week on Saturday by TELEPHONY PUBLISHING CORPORATION, 608 So. Dearborn St., Chicago, Ill. Telephone Wabash 8604. Subscription $3.00 per year. Entered as second class matter September 4, 1908, at the Post Office at Chicago, Ill., under the act of March 3, 1879.

THE RINGING SUPPLY

Must Be Assured

By H. L. MUELLER
Equipment Development Department, Bell Telephone Laboratories, Inc.

THE RINGING MACHINE is a vital part of the telephone plant. In addition to supplying the current for ringing subscribers it drives the tone-alternators, supplies busy-back and a number of other signals that are essential to the operation of the telephone system

RINGING MACHINES in the telephone plant take their name from the fact that they supply the current for ringing subscribers, but their function is broader than that. In the larger central offices the ringing generator has two collector rings from which the 20-cycle ringing current is taken and also a commutator from which direct current is taken to control the collection and return of coins on coin-box lines.

In addition to these supplies part of the 20-cycle current is passed through interrupters driven from the ringing machine shaft to give the ringing intervals required. Tone alternators, also driven by the same machine, in conjunction with the interrupters supply busy-back and a number of other signals that are essential to the operation of the telephone system.

The ringing machine is thus a vital part of the telephone plant, and its continuous operation must be assured under all conditions.

The ringing generator is driven by a directly-coupled motor. It is customary to have one set driven by an alternating-current motor supplied from the commercial power lines; and one set driven by a direct-current motor, operated from the central office battery, to carry the load in case of failure of the alternating-current.

In the past it has been the practice to use magnetically-operated equipment to start the emergency sets when, due to failure of the alternating-current supply, the voltage of the ringing machine fell below a certain limit, and to transfer the load back to the regular set when the commercial service was restored.

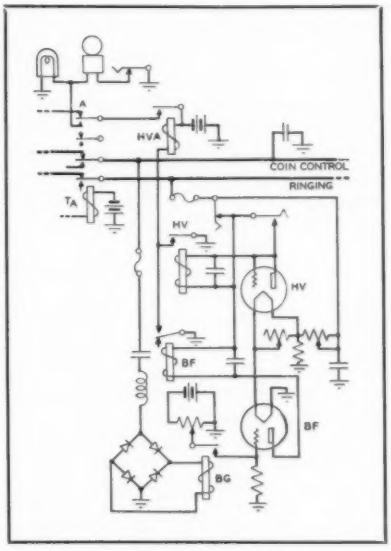


Fig. 1. Simplified diagram of the low-voltage release circuit

Because of the limitations of magnetic equipment, however, the voltage values between which the equipment operated were rather wide, and short interruptions of the ringing supply occasionally occurred. Moreover, no protection was provided against ringing voltages that were higher than normal, nor against the possibility of a brush having been left out of one of the collector rings of the machine after maintenance. These last two conditions merely caused the operation of an alarm.

To improve the reliability of the ringing supply, a new circuit has been developed that provides for transferring the load to the emergency set on brush failure and high voltage, as well as on low voltage. The voltage range required to make the transfer has been narrowed by the use of vacuum tubes.

Failure of the circuit to operate, because of the failure or removal of a vacuum tube, has been avoided by arranging the circuit so that if a tube fails or is removed, the ringing load will be transferred to the battery set and an alarm will ring.

The ringing and coin-control leads from the regular and emergency sets are brought to the back and front contacts of a transfer relay from which all the ringing supply for the office is taken. When this relay is unoperated, the regular ringing set supplies the load; and when it is operated, the load is transferred to the emergency generator.

This relay, in turn, is operated when the counter emf, of the motor driving the emergency set approaches its nominal value, thus indicating that the emergency generator is up to its rated speed. Thus the transfer of load is accomplished automatically merely by bringing the emergency set up to speed.

The basic component of the new circuit is the arrangement for starting the emergency set whenever the voltage of the regular set falls below the established minimum value. Other types of trouble cause the transfer of the load by artificially producing a low-voltage condition on the regular ringing supply; which automatically makes the transfer through the low-voltage circuit. The essential elements of this low-voltage transfer circuit are shown in Fig. 1.

The heart of this section of the circuit is the vacuum tube, *LV*. The filament of this tube is supplied from the output of the regular ringing generator through a rheostat; and the plate and grid potentials are derived from the same source through the winding of the *LV* relay.

With normal voltage on the ringing generator, the plate current is sufficient to hold the *LV* relay operated; but when the voltage drops below the established minimum value, the plate current decreases sufficiently to allow the *LV* relay to release,

and on releasing, it operates relay *B* through a back contact.

The sequence of operations following the closure of the *B* relay may easily be followed from the diagram. Through one of the front contacts of relay *B*, relays *ST* and *R* are operated. The operation of the battery- actuates the starter of the battery-driven set. The operation of relay *R* connects battery to the winding of relay *U*, through the contacts of which the transfer relay will be operated.

The other side of the winding of relay *U*, however, is connected to one side of the motor of the emergency set at a point where the voltage is essentially battery potential while the motor is starting, because of the starting resistance in the ground side of the line.

As the motor comes up to speed, however, the voltage at this point becomes ground value when the resistance is short-circuited by the relay within the starter so that the *U* relay has battery potential across it, and operates. This closes the circuit to the transfer relay, and the transfer of load is accomplished. The operation of relay *ST* has also connected battery to the transfer alarm circuit, and thus notifies the attendants that a transfer of load has been made.

When the voltage of the regular generator is restored to normal, the output of the vacuum tube will be sufficient to operate the *LV* relay, and its operation will open the circuit to the winding of relay *B*. When relay *B* releases, the circuit to relays *R* and *ST* is opened; and the release of these relays shuts down the emergency generator and releases the transfer relay to transfer the load back to the regular generator.

Both the high-voltage and brush-failure circuits act to stop the motor driving the regular generator. As the voltage of the regular generator drops as a result, the transfer will be made because of low voltage as already described.

It will be noted from Fig. 1 that the starter of the motor driving the regular ringing machine is held operated through a back contact of the *CO* relay. The winding of this relay is connected through a back contact of relay *B* to the back contact, *A*, of the transfer relay.

If the battery is connected to terminal *A* while the transfer relay is unoperated, the *CO* relay will operate and open the circuit to the holding coil of the motor-starter of the regular generator. The high-voltage circuit and the brush failure circuit are thus both arranged to apply battery to this *A* terminal.

A schematic diagram for these two circuits is given in Fig. 2. Each includes a vacuum tube with a relay in its plate circuit. The plate current of vacuum tube *HV*, of the high-voltage circuit, is too small at normal voltage to operate the *HV* relay. When the voltage rises above a pre-established safe maximum, however, relay *HV* is operated and in turn operates relay *HVA*. Operation of this relay connects battery to the *A* terminal of the transfer relay, and this transfers the load to the emergency generator as already described.

When the brush has been left out of the holder on one of the collector rings of the ringing generator, a complete failure of the ringing supply does not occur since through the filter condenser on the coin-control circuit a return path to ground is obtained, resulting in half-excitation of the ringing transformer.

This ground current, flowing over the negative lead of the coin-control generator, however, changes the 40-cycle ripple normally present on the coin-control circuit to a 20-cycle ripple. This change in frequency of the ripple is made to operate relay *HVA* and thus transfer the load to the emergency generator. The bias on the grid of vacuum tube *BF*, which is part of the brush-failure transfer circuit, is positve under normal conditions, and results in sufficient plate current to hold relay *BF* operated. When relay *BG* is operated, however, a negative bias is placed on the grid, and the plate current decreases sufficiently to release the *BF* relay, which, through a back contact, operates *HVA*, and transfers the load.

Operation of relay *BG* is controlled by a connection from the coin-control supply through a tuned circuit and a copper-oxide rectifier. The tuned circuit is tuned to 20 cycles, and does not pass enough of the normal 40-cycle ripple to operate relay *BG*. However, when the ripple changes to 20 cycles, as a result of brush failure, sufficient current is passed to operate relay *BG*, and thus place a negative bias on the vacuum tube.

The equipment layout of the new circuit, shown in Fig. 3, is so arranged that it occupies no more space than the previous magnetic devices. The limits of circuit operation, furthermore, are considerably closer to the normal ringing voltage value, and the action is so fast that, in the event of transfer, no calls or signals will be lost due to interruption of the ringing generator. Since the circuit is fully automatic under all trouble conditions, it makes a valuable adjunct to the automatic power plants, which are attaining a wider use in the Bell System.

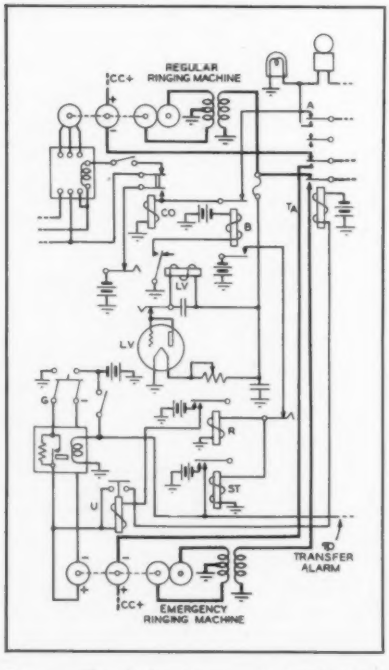


Fig. 2. The high-voltage and brush-failure circuits cause transfer by applying voltage, through lead A, to relay CO of the low-voltage circuit

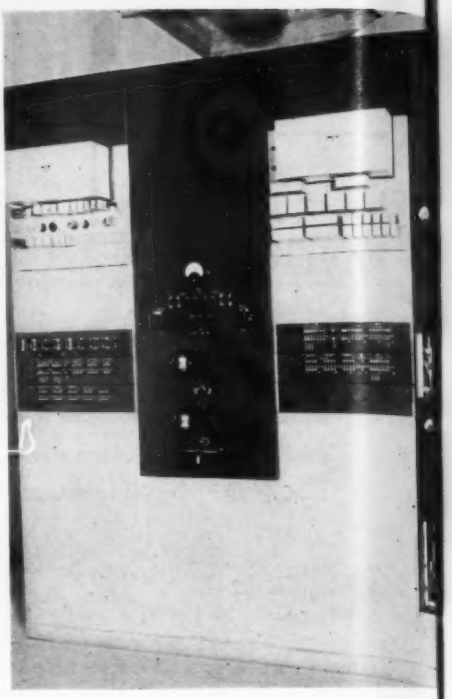


Fig. 3. View of Equipment for the new transfer circuits

Ship-To-Shore Service Invaluable to Vessels on Great Lakes

By JOHN G. REYNOLDS

SINCE 1934, THE Lorain County Radio Corp., Lorain, Ohio, has patiently developed its system of radiotelephone communication from a single circuit serving only one ship to a highly efficient system of 15 circuits serving 128 ships. Contact can easily be made with the land stations and thence connection obtained with the local or long distance system. Vessels may communicate with each other direct without assistance of shore stations

INAUGURATED IN MAY, 1934, the ship-to-shore system of radiotelephone communication of the Lorain County Radio Corp., Lorain, Ohio, has steadily grown from its original single circuit serving only one vessel to a highly efficient system consisting of 15 circuits furnishing helpful service to 128 boats on the waters of the Great Lakes.

The Lorain Telephone Co. was the first company in the Great Lakes region to see and recognize the need for making possible telephone communication between the land and vessels plying the Great Lakes. The ship-to-shore service is operated under the name of the Lorain County Radio Corp. with a shore station near Lorain. Its first radiotelephone installation was on the steamer William C. Atwater in May, 1934. The first tests made of the equipment by the corporation's engineers, Robert Fox, H. P. Boswau and E. I. Deigan, left no doubt as to the practicability and usefulness of the service.

From this successful installation, use of the system progressed slowly for three years. After two years of operation only six ships were equipped for radiotelephone service and at the end of the third year 15 vessels were making use of the system. During the fourth year of service the number of subscribers increased to 57. At the beginning of this year 82 ships were supplied with radiotelephones. Since then there has been increased demand for the service and now 128 vessels have the equipment in use.

The Lorain County Radio Corp. has shore stations located in Lorain, Ohio, Port Washington, Wis., and Duluth, Minn. The Lorain station is completely equipped for both short and long range communication while the Duluth and Port Washington stations are equipped for short range communications only—that is, for distances up to 125 miles from either station in the day time.

As the home of 85 per cent of all cargo vessels is in Cleveland, Ohio, the Lorain corporation is well located for providing the ships with a means of telephone communication. Most of the boats desire continuous communication from the time they leave Lake Erie ports until they reach their destinations, either on Lake Michigan or Lake Superior.

Generally the fleet shore captain and the fleet shore engineer maintain headquarters in Cleveland, and most of the companies have agents in Duluth and in certain ports on Lake Michigan. This location of personnel, plus the aid of ship-to-shore communication facilities, makes it possible for ships to secure information quickly; and agents of the lines are enabled to advise the ship masters of loading and unloading facilities in the various ports.

The user of the telephone aboard a vessel can call either a land telephone through the shore stations or establish connection with another vessel by simply dialing the vessel's number as given in the directory of the system. Such calls do not pass through the shore stations and the company has no control over them.

During 1938 the Lorain County Radio Corp. handled approximately 20,000 messages. Examination of the messages reveals that the same necessities which compel people to use telephones on land also prevail on ships—only to a more marked degree because of the fact that cargo vessels represent a large investment and carry crews of 36 men.

Ship captain using telephone in his office aboard ship. In this picture a desk-type handset is being used. Note the loudspeaker on the wall.

In addition to the assistance given by this communications system to the business side of shipping, the ship radiotelephone is used for many other purposes. Distress calls, calls for weather and hydrographic reports and other aids to navigation, social calls, and calls for medical aid have made it very evident that a radiotelephone on a ship is more essential than a telephone in an office on the land.

Such a broad scope of services to ships is performed by equipment which is very simple to operate. In earlier radiotelephones it was necessary to perform a number of switching and tuning-in operations at the transmitter unit, and the operation was much different than the operation of a usual telephone instrument. However, the telephone sets used in the ship-to-shore service today are as easy to operate as any land telephone.

The Four-Channel Radiotelephone

The LC-50-D radiotelephone, developed by the Lorain County Radio Corp., is as simple to operate as the ordinary dial telephone. With this radiotelephone, all operations are performed by the mere lifting of the handset from its cradle and the twirling of the dial. Any one of four sets of frequencies or channels in the range from two to 14 megacycles are designated by the numbers 10, 20, 30 and 40 and can be selected by merely dialing the channel number. This simplicity provides a ship radiotelephone that anyone can use without lengthy instructions.

The complete radiotelephone vessel equipment comprises a four-frequency crystal-controlled radiotelephone transmitter, four crystal-controlled radiotelephone receivers, the necessary power supply and control equipment, a transmitting and receiving antenna and one or more telephones for installation at suitable locations on the ship.

All component parts of the equipment, except the instruments and the antennae, are enclosed in a metal cabinet, measuring 22 ins. long, 19 ins. wide and 64 ins. high, which is bolted to the floor. All equipment in the cabinet is assembled on a number of sliding chassis equipped with automatic plug-in arrangements which complete all connections as soon as a chassis is pushed into place.

The Transmitting and Receiving Antennae

The output of the transmitter is designed to operate directly into the transmitting antenna which consists of a single wire, 50 to 100 feet long, carried as high as possible. An antenna ammeter with an adjustable shunt mounted on top of the cabinet, makes it possible to obtain readings for tuning purposes on various lengths of antennae. The receiving antenna is usually installed on the opposite side of the ship from the transmitting antenna and connected to the cabinet through a shielded low-capacity rubber-covered lead-in cable.

Two ball-bearing dynamotors, mounted in the base of the cabinet and provided with twist-lock connecting plugs supply power for the transmitter at eight, 400 and 1,250 volts. Radio type filters, contained in the base of each dynamotor, absorb all interference noises. A rheostat mounted on each dynamotor permits adjustment of the machines for operation on any direct-current voltage between 90 and 115 volts.

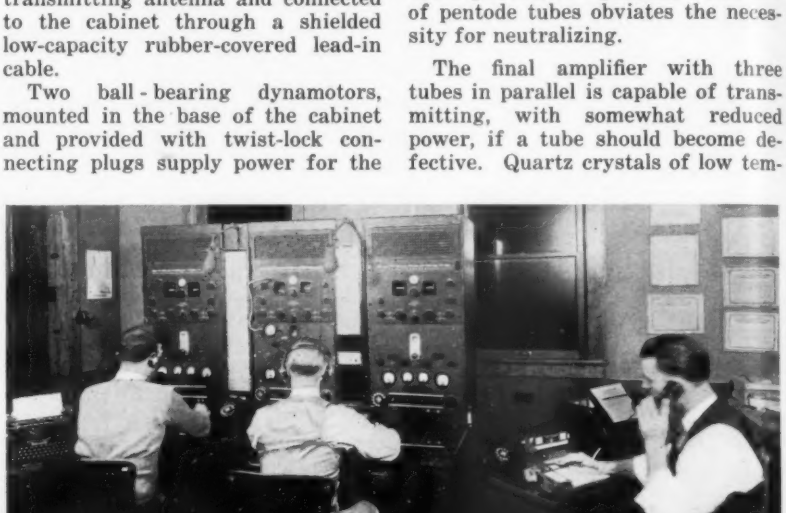
The connections to a vessel's power supply are equipped with built-in filters to prevent disturbances on the power lines from reaching the radio receivers and audio equipment. Two No. 12-gauge wires in armored cable are used for connection to the power supply.

During stand-by periods with all four receivers in full operation and the transmitter tubes preheated, the input from the power line is approximately one ampere. When the handset is lifted from its cradle one dynamotor does not start until after the two-digit channel number is dialed. This method of starting insures that the filaments of the transmitter tubes have attained full temperature before plate voltage can be applied, and separates the starting surges of the two machines. When the transmitter is in full operation the input from the power line is approximately seven amperes.

Pentode Tubes Used in Transmitter

The transmitter of the radiotelephone is assembled on the top chassis in the cabinet. It consists of a crystal-controlled pentode oscillator, an intermediate doubler stage for frequencies above seven megacycles and a modulated final amplifier with three pentodes in parallel. The use of pentode tubes obviates the necessity for neutralizing.

The final amplifier with three tubes in parallel is capable of transmitting, with somewhat reduced power, if a tube should become defective. Quartz crystals of low temperature coefficient insure frequency stability within better than .025 per cent.



Receiving equipment at station WMI, Lorain, Ohio. Station WMI is the shore-station end of the Great Lakes radiotelephone system operated by the Lorain County Radio Corp.

The carbon microphones used in the telephone handsets have ample output to provide sufficient modulating power with one pentode stage of speech amplification. The suppressor grid method of modulation combines simplicity in the audio equipment with substantially complete modulation of the carrier. The transmitter delivers full 50 watts of carrier power output at any frequency between two and 14 megacycles.

Individual tuning condensers and inductances are provided for all stages of the four frequencies. Selection of the desired frequency is accomplished under the control of the dial by means of relays. Separate relays for oscillator and final stages make it possible to arrange the relay contacts close to the radio-frequency circuits.

The Radiotelephone Receiver

Four separate and complete self-contained superheterodyne receivers are mounted on the second and third chassis of the cabinet. The receivers are designed for direct operation

from the ship's power supply of 110 volts direct current. It is now possible to design receivers for operation on this voltage which possess more than ample sensitivity and selectivity. In order to insure the frequency stability necessary for permanent tuning, quartz-crystal control is incorporated in all receivers.

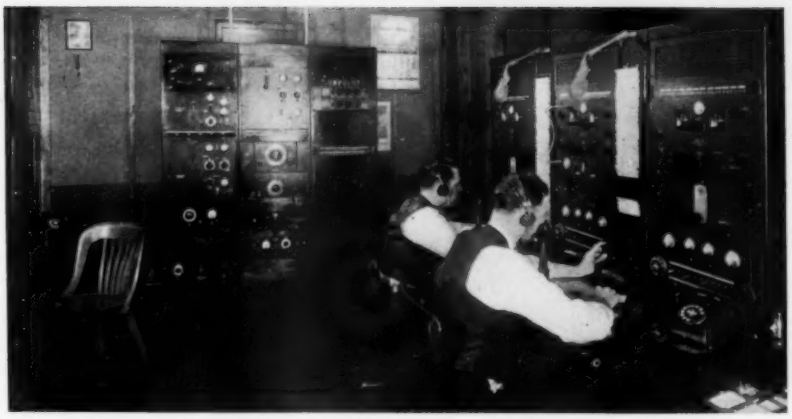
The use of four complete receivers insures signal reception on all frequencies at any time, thus obviating the necessity for switching the receiving frequency as the ship passes from the receiving area of one frequency into that of another. This assurance that calls will be received at all times is of utmost importance where the distance range of the frequencies varies with the time of day and the season. Moreover, separate receivers for each frequency make it possible to receive distress calls on frequencies assigned for distress traffic while at the same time calls can be received on the working frequencies.

A further important advantage of using a separate receiver for each frequency is that calls can still be received on some of the frequencies if a receiver should become defective. The reliability is furthered by operating the receivers directly from the ship's power supply, thus eliminating the need for continuously running converters.

The "Lockout" Feature of the Channels

To prevent disturbance of a conversation by other ships attempting to call at the same time, the ship-to-shore channels are provided with a special "lockout" feature, operating in response to the shore station carrier, which prevents starting of the transmitter when the selected frequency is in use. A busy tone indicates to the calling party that the channel is busy.

Typical installation of the wall type handset telephone used on vessels on the Great Lakes. A cradle at the top holds the handset securely in heavy weather.



Radio transmitter and receiving equipment of station WMI. The Lorain County Radio Corp. has spared no expense in providing all necessary equipment to combine land lines with the radio link.

In emergencies, it may be of vital importance to contact the shore station at once, even though the channel may be busy. For this purpose the wall telephone is provided with a special lockout-release button, mounted behind a paper seal. To break in on a busy channel, the operator merely pushes a finger through the paper seal and presses the button while dialing the channel number.

On channel 40, which has been designated for direct ship-to-ship communication, the lockout feature is disconnected, thus allowing more than two ships to discuss navigation or emergency conditions.

The Ship-to-Shore Telephone Instruments

All of the telephone instruments are of the handset type of either wall or desk style. The wall set has a cradle for the handset at the top which holds the handset securely in heavy weather. A telephone dial and the calling loudspeaker are mounted in the front face. At the right is a volume control for the loudspeaker for use when listening for fog signals.

At the left behind a paper seal is the lockout-release button which permits the breaking-in on a busy channel in emergencies. The desk telephone is identical with the standard dial-type desk set. If desired, a bell box containing a loudspeaker with a volume control may be used with it.

The telephones are connected to the LC-50-D unit by means of a special rubber-covered cable containing four cable pairs with individual copper shields to insure freedom from interference.

The Simple Calling Signal Used with Loudspeaker

The audio outputs of all four receivers are combined in a special mixer circuit and fed through a low-pass filter into a loudspeaker contained in the pilot-house telephone. The low-pass filter is designed to hold back substantially all noises caused by static disturbances and by radio conversations on other ships, while the low-frequency calling tone used by the shore stations and by other ships is freely passed. This feature results in a clear unmistakable signal in the loudspeaker.

Each ship is assigned a simple calling signal consisting of a combination of long and short rings, similar to the familiar signal used on a rural party line. In many instances the whistle signals already assigned to the ships for identification purposes are used.

In order to indicate on which frequency a call should be answered, channels 10, 20 and 30 are identified by one, two or three short dots following the ship's calling signal. As channel 40 is usually employed for direct ship-to-ship communication, to simplify the calling procedure from one ship to another the channel indicating dots are omitted.

Thus, when a calling signal is heard without the following dots, it is known that a vessel is being called on channel 40. To answer a call the operator merely dials the indicated channel number and replies by voice. Such calls are made direct

between vessels and no connections are made at the shore station.

Voice Control and the Calling Tone

While carrying on a conversation the transmitter is automatically started and stopped by means of a voice-controlled relay, thus eliminating the "press-to-talk" key of older type ship-to-shore telephone systems. The same voice-controlled relay also disconnects the radio receiver while transmitting.

The first digit dialed on the telephone selects the desired channel. When the next digit is dialed, the busy test is made to determine whether or not the selected channel is free. If it is free, the transmitter starts and at the same time a tuned feed-back circuit for the modulator is closed as long as the dial is running back.

This feed-back circuit causes the modulator to function as an audio-frequency oscillator, with the result that 300-cycle tone is transmitted during the time the dial is running back. This automatically - trans - mitted tone serves as an attention signal for the shore stations.

The same tone is used for direct calling from one ship to another. After dialing channel 40 the operator listens to make sure that he will not disturb conversations which may be in progress on the channel. Then he sends the calling signal of the desired ship by dialing "2" for a short ring and "8" for a long ring.

The time taken by the dial for running back from the figure "8" is approximately four times as long as from figure "2." This allows distinctive long and short signals to be transmitted. For convenience the radiotelephone directory lists all vessels and gives the numbers to be dialed for calling any particular ship.

Company Handled 20,000 Calls in 1938

The Lorain County Radio Corp. was the first to develop a large-scale commercial radiotelephone system for ships. In 1937 it lead all other ship-to-shore telephone systems in the United States with a total traffic of 19,849 messages during the eight months of the shipping season on the Great Lakes.

H. E. Hageman, president of the Lorain County Radio Corp., and general manager of the Lorain Telephone Co. and one of the forces behind the development of this interesting phase of telephony, said: "During 1938 the corporation handled approximately 20,000 calls. Our records show that during the seasons of 1937 and 1938, 98.6 per cent of all calls received were completed. At the present time the corporation is busily engaged in enlarging and improving its shore-station facilities so as to handle approximately 40,000 calls during the 1939 season."

The radiotelephone service on the Great Lakes has proven to be a great aid to navigation because the ships can secure weather reports quickly and seek shelter. It has demonstrated its value in cases of illness or accidents to members of a ship's crew or to the vessel itself. It makes it possible for members of crews to keep in touch with friends and families.

Since its inception several happenings have occurred illustrating and substantiating these various utilizations of the service. As for long distance service, the record call was made last August 29 from the yacht Mizpah in Georgian Bay to Geneva, Switzerland, a distance of more than 4,000 miles.

It took 30 minutes to put the call through over a route including 240 miles of radiotelephone from Georgian Bay to the shore station at Lorain, Ohio, thence land lines to New York, radiotelephone to London, England, and then cable lines to Switzerland.

From a purely business standpoint, the service has proved invaluable. In fact, Mr. Hageman states that a ship equipped with radiotelephone service has a distinct advantage over one not so equipped.

Mr. Hageman is justly proud of the radiotelephone service of his company, which covers all the Great Lakes. He feels that the record it has made in every way entitles the Lorain County Radio Corp. to protection by the FCC in the matter of wave lengths from another organization which seeks to operate on the same channels. And the customers of the company heartily endorse the company's position.

▼ ▼

Southern Bell Bond Issues at Low Underwriting Cost

A group of 47 underwriters, headed by Morgan Stanley & Co., Inc., July 21 offered to the public $22,250,000 of a $25,000,000 3 per cent debenture issue of the Southern Bell Telephone & Telegraph Co. at 107½, to yield about 2.69 per cent to maturity. The balance of $2,750,000 of debentures will be sold by the company privately to the Bankers Trust Co., as trustee of the pension funds of the Bell System, at 106.

Net proceeds to be received by the company from the sale of the entire issue, after deducting the estimated expenses in connection with the sale, are expected to approximate $26,402,000. Of this amount $19,998,025 will be used to repay, in full, advances (evidenced by demand notes) from American Telephone & Telegraph Co. The remainder of the net proceeds (about $6,404,000) has not been allocated to specific uses and initially will be added to the company's current cash.

Underwriting discounts or commissions on the $22,250,000 of debentures purchased by the underwriters amount to $333,750, or 1½ per cent, leaving gross proceeds to the company on this portion of the issue of $23,585,000, or a price of 106 per unit. The underwriting spread of 1½ per cent, which is the smallest ever charged by the bankers on a 40-year bond, was set in the original registration statement which was filed June 29 with the Securities and Exchange Commission.

The price of 106 paid to the company for the issue brings the issue cost for the funds to about 2.75 per cent.

Directors of the Southern Bell company, meeting at Atlanta, Ga., July 17, voted to proceed with the financing on a non-competitive basis, despite the objections of several state public utility commissions (Kentucky, Tennessee and Louisiana), and protests from three minority stockholders of the parent organization, the American Telephone & Telegraph Co.

The attitude of the SEC in the matter of private financing is not known as that body has never gone on record either for or against competitive bidding for new issues.

▼ ▼

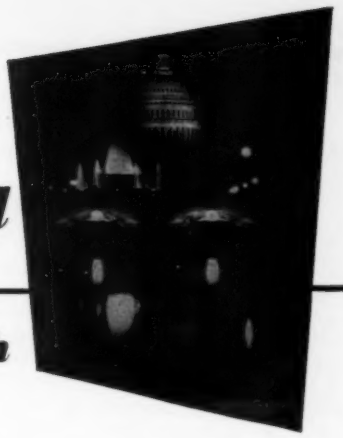
Operators Locate Girl To Advise of Father's Death

Recently three telephone operators of the Illinois Bell Telephone Co., in Rockford, Ill., played an unusual part in a dramatic hunt for a person; and, by the success of their efforts focused attention on the importance of systematic communication methods—and also proved that telephone operators are good detectives.

The operators, searching for a Rockford girl traveling with a band to tell her that her father had died suddenly, worked for four hours telephoning cafes, hotels, bus and railroad stations and covered two states before they finally located their party.

But for a network of telephone lines across the country, the patience of operators and the existence of a silent but ever-working code—"The Message Must Go Through"—the father of the girl would have gone to his grave attended only by strangers.

In the Nation's Capital



by Francis X. Welch

Special Washington, D. C., Correspondent for TELEPHONY

***RELIEF FOR SMALL COMPANIES** from Wage-Hour law requirements by Congressional amendment likely to be unsuccessful due to early ending of this session. . . . Political influences intervened to prevent action by Congress, despite tireless efforts by special committee of United States Independent Telephone Association. . . . Rumors of FCC Chairman McNinch retiring bring up surmises as to his successor. . . . Telephone service and operation in Russia, as described by official Soviet organ, disclose technical difficulties and lagging development of service*

IN A FEW more days the first session of the 76th Congress will pass into history. And unless the valiant last ditch fight of the USITA's wage and hour committee produces entirely unexpected success, the frost will be on the pumpkin long before the small telephone companies receive any relief from the crushing burden of the present federal Wage-Hour law requirements.

This may well mean that some of these little companies which handle interstate calls will not survive the winter. It is a situation that casts grave reflection upon the equity of some of our present parliamentary processes.

As TELEPHONY readers already know, there is *absolutely no contradiction from any quarter* on the merits of the little telephone company claims that they are entitled to some relief. Even those differences as to the form and measure of the relief that should be granted have not raised any barrier of real consequence.

The special wage and hour committee of the United States Independent Telephone Association, while striving for the most comprehensive relief available, has shown a disposition to take half a loaf, a quarter of a loaf, and finally even a crust, provided it could be given to the little companies right away.

But even the smallest crumbs of comfort appear likely to be withheld from these admittedly deserving rural enterprises. Why? The reason is too well known to report the story again. The cause of the small telephone company has become a desirable pawn in a political game between administration reformers and powerful agricultural interests. It has become a rope in a sorry tug of war. It is pulled this way and that way, but, so far, it is almost where it started.

In short, everybody agrees that the relief is essential, but nothing has been done about it. One constructive lesson may be salvaged from this experience. That is the desirability of segregating the cause of the telephone company from allied claims for industrial exemptions under the Wage-Hour law.

Therefore, during the Congressional recess, the Independent telephone industry and its friends who have been so successful in forcing recognition of the justice of the little telephone companies' position *on its merits*, may be equally successful in gaining support of that position as a matter of *effective procedure*.

Possibly, there are political complications which block this approach. Perhaps, there is, in the final analysis, no practical way for the small companies to avoid being again ground between the upper and nether millstones of a New Deal-farm bloc feud. But your correspondent fails to see why, in a country which is supposed to be operating on a basis of representative government, such would necessarily be so.

After all, if Congressmen can be moved to favor aid for a proposition, they can also be persuaded to go about it in a way which will prove their sincerity.

IT SEEMS to this writer that no Congressman who has already committed himself in favor of a small telephone company exemption could take it the wrong way, if he were again approached with the suggestion that he show his friendship in a more practical way. This would be to insist that the cause of telephone relief in the next session of Congress does not, at the outset, have another Old Man of the Sea placed around its neck in the form of an "omnibus bill."

It is true, the "omnibus bill" was the administration's idea. The movement for telephone relief in this session started out on its own and could have finished that way if Chairman Norton had not insisted on tying it in the same sack with a half-dozen Kilkenny cats. But after all, Chairman Norton isn't Congress, and neither is the House labor committee. Both found that out last week when the House membership slipped over the NLRB investigation

(predicted in this department, by the way), notwithstanding the hectic opposition of administration leaders.

So it might be worthwhile, when you next speak or write to your Congressman about doing something for the little telephone companies, to suggest that it may not be enough to be merely in favor of it, nor even to introduce a bill on the subject. What the situation calls for is insistence upon the House labor committee reporting bills out the way they are put in.

Strictly speaking, the administration has no inherent right to fuse entirely different claims for statutory exemptions into a single bill, simply because they relate to the same piece of organic legislation. Such a procedure might not be objectionable if there were no opposition to any part of an "omnibus bill." But where there is opposition to particular items (and there was certainly plenty of it on Chairman Norton's agricultural labor clauses), it seems both unfair and un-democratic to penalize other claimants for legislative relief which is admittedly deserved.

Maybe the House labor committee will be somewhat chastened and less high-handed at the next session as a result of the recess investigation of the NLRB. The voting of this probe amounted to an expression of lack of confidence in the committee's work by the House members. In any event, there will be plenty of time between now and the next session for the Independent telephone industry to work along this line, if it decides that such a course would be the best policy.

IT SHOULD be added in all fairness that there was no visible way for the USITA's committee to have prevented the administration's "omnibus bill" tactics in this session, even had it desired to do so. For that matter, there were times during this session when it seemed to be the wiser plan to go along, first of all with the wage-hour administration, then with the farm bloc, and finally with anybody at all who seemed to be going in the general direction of enacted legislation.

Speaking of victims, what actually happens to the small telephone companies this winter should be watched closely as a matter of congressional edification. Even if legislative relief is forthcoming at the next session, it will be small consolation for those companies that may go under before next year rolls around.

A record of the jobs that might have been saved, of telephone service that might be still operating, and of companies that might be still solvent, had Congress not denied relief at this session, would be a most impressive argument to urge upon legislators, to the end that prompt and intelligent action ought to be taken in this direction early in 1940.

COMING CONVENTIONS

United States Independent Telephone Association, Hotel Stevens, Chicago, October 10, 11, 12 and 13.

Independent Pioneer Telephone Association of the United States, Hotel Stevens, Chicago, October 12.

Kentucky Independent Telephone Association, Hotel Lafayette, Lexington, October 23 and 24.

Tennessee Independent Telephone Association, Hermitage Hotel, Nashville, October 26 and 27.

Alabama Independent Telephone Association, Jefferson Davis Hotel, Montgomery, November 16 and 17.

Nebraska Telephone Association, Hotel Fort Kearney, Kearney, April 9 and 10, 1940.

Pennsylvania Independent Telephone Association, Yorktowne Hotel, York, May 16 and 17, 1940.

The Illinois Telephone Association, Hotel Pere Marquette, Peoria, May 28 and 29, 1940.

New York State Telephone Association, June 26, 27 and 28, 1940.

RUMORS in Washington that Chairman McNinch would quit as head of the FCC because of his health became an actuality July 25 when Mr. McNinch told President Roosevelt that he wished to resign. It is a fact that the delicate state of the little chairman's physical condition has necessitated long absences from his official duties, and the belief grew that he would soon give up the job entirely.

As far as President Roosevelt is concerned, there was no pressure at all exerted upon Chairman McNinch to fish or cut bait. Indeed, the well-known loyalty of the President to faithful subordinates is such that he would be inclined to let the chairman coast indefinitely if he were so disposed. But the job of chairman at the FCC is no sinecure. If anything, it is becoming increasingly exacting.

So it was not surprising that Chairman McNinch himself should ask for a transfer to a less rigorous position on the ground that he no longer feels able to pull his weight on the commission. Such a job undoubtedly is his for the asking, such is his influence with the New Deal for past service of a very active nature. His new job, however, would probably not be a federal judgeship or any other appointment requiring Senate confirmation.

This brings up the question of a possible successor. Frankly, your correspondent has not the slightest idea who the successor might be and seriously doubts if either the President or his close advisers have given the matter thought to the extent of deciding upon a specific appointment.

There are plenty of guesses going around. Some of them are too wild to be worth repeating. In such a category should be placed the suggestion (which appeared in the New England press) that Tommy Corcoran would finally come out in the open and plant himself at the head of the FCC.

This is incredible for two reasons: (1) Corcoran wouldn't have any more chance of being confirmed to the FCC than Tom Amlie did for the ICC; (2) Corcoran realizes that he does his best work for the New Deal by staying under cover. His emergence as head of an important federal commission would be equivalent to putting a shiny red apple on his head for all the world to shoot at.

More credible is the suggestion that former Governor LaFollette of Wisconsin is in line for the job, although it is not likely that he has already been approached on the matter (as one published report intimated). While LaFollette's appointment would have political advantages from the New Deal angle, this department is inclined to believe that the former governor of Wisconsin has not given up the idea of rebuilding his family political machine in that state. Obviously, he could not make much progress in that direction if he were tied down to a prominent administrative post in Washington.

But whoever the next chairman of the FCC might be, it is important

to the telephone industry as a whole to keep in mind the consistent pattern of President Roosevelt's recent appointments to high regulatory and administrative posts in the federal government.

Where these posts have been of such a character as to come in contact with public utilities, the appointees have for the most part been anti-utility and often outright public ownership advocates. President Roosevelt's attempt to name Amlie to the ICC and his more recent success in naming Leland Olds to the FPC are examples in point.

Whatever else may be said of the FCC, it has so far not shown any government ownership flavor nor pronounced anti-utility bias. Compared with some other federal commissions, it is almost unique in this respect. For this reason any new appointment which President Roosevelt might make to the FCC should be watched with interest. It might well indicate whether his known hostility against the electric power industry extends to other members of the public utility family.

THE FOREIGN Communication News, published in Washington by the Bureau of Foreign and Domestic Commerce, recently carried an interesting description of progress of organized telephone service under the universal government ownership and operation set-up of the Russian Soviets. The story was abstracted from an item which appears in the official Soviet organ Pravda, published in Moscow last April. The conditions described, in all probability, still persist.

The Pravda recalled that at the last Congress of the Communist party in Moscow, complaint was registered over the lagging progress being made in the development of Russian communications. This matter was brought up at the congress because of the "great political importance" which the Soviets attach to the improvement of telephone service.

A study of the situation disclosed that technical difficulties exist everywhere in Russia. Telephone connections in large cities are far behind the development of such cities, the construction of new homes, and the increased demand of the population. In Moscow, for instance, the installation of a telephone is achieved only with great difficulty. The same situation prevails in a number of other cities and even new service applications from Soviet government agencies for telephones are satisfied grudgingly.

Best Story of the Week —What's Yours?

In a small exchange in northern Indiana where the manager runs the whole works, his telephone rang; upon answering he hears the following from a prominent lady of the small town!

"I *wish* you could hear your telephone man out here in front of my house! He's using the loudest profanity I ever heard. Please see what's going on and why he swears so. I don't like to hear such talk in this neighborhood."

Whereupon the manager penned this message to his foreman: "Harry, Mrs. Perry has complained about your profanity while working near her home. Please tell me what you said and why." Soon he received the following reply from the foreman:

"Dear Boss: Bill and I was splicing the cable in front of Mrs. Perry's house. Bill was on the ground and I was on the platform. Bill sends up a pot of hot metal and when I gets it to the platform my foot slips and I spills the metal down on Bill. It runs down his neck, inside his overalls and into his shoe. Bill leaps sideways, turns a summersalt, looks up at me and says: 'Harry, you must be more careful hereafter.' "

The abstract from the Pravda continued:

The first reason for this is that in the construction of new lines, the Commissariat for Communications has acted slowly, and has built badly. In Moscow, for instance, not a single one of the new automatic stations under construction for several years was completed on time, and the plans for building new trunk lines have not yet been finished. At the same time the existing apparatus and facilities are not being used to the full.

The construction of telephone lines calls for a large amount of non-ferrous metals; a station of 10,000 numbers, for instance, needs 150-200 tons of copper and 250-300 tons of lead. The installation of 500 telephones at a distance of 5 km. from a central station calls for the laying underground of 20 tons of copper and 40 tons of lead.

These are minimal quantities, and have been greatly exceeded by the laying of large quantities of cables which are not used at all, because of a deliberate policy of enemies of the people, who were responsible for instructions as far back as 1932, calling for the laying of 2,000 trunk line wires and 7,000 distribution wires, as a reserve, for every 10,000 cable wires laid.

As a result, in Moscow half the underground wires are not used, and the new stations have many more cables than are necessary.

While the amount of metal used for a single telephone line is small, each number requires a pair of wires, even if it is used only two or three times a day. Technological improvements in telephone work, however, have made it possible to use wires to a greater extent than before, but if the possibilities are not taken advantage of, the whole system suffers.

It has been discovered, for instance, that it is not necessary to provide a complete line for each number. Each large automatic station should have a number of smaller automatic stations, through which each wire may be used to connect five to ten or more instruments. In the project for the new Krasnopresnensk automatic station, for instance, which calls for 6,000 telephones, provision is made to erect the additional equipment in a single place.

If, on the other hand, small automatic stations are set up in factories and housing districts, the same number of cables will take care of 12,000 telephones, and expenses of expansion will be reduced by 30 per cent. Furthermore, if the inactive cables now already under ground are utilized, the number of additional telephones can be still further increased.

The article went on to complain over the failure of the communication administration to coordinate the traffic load as between the peaks and valleys of residential and business uses through technical devices and practices, some of which have been well known for some time.

It would be idle to deny that Russian telephony has made great strides since its primitive state during days of the last Czar. But it is interesting to note that when anything goes wrong under Soviet government planning, the deficiencies are not laid to errors in managerial judgment, but to a "deliberate policy of enemies of the people."

Under such a system of government operation, the plant engineer, unless gifted with infallible judgment and a clear insight into the future, stands a good chance of waking up and finding himself a traitor. Business or professional mistakes automatically become a form of treason and those who make them stand a good chance of attaining premature reunion with their ancestors.

Of course, government operation of telephone service in other European countries has gone on for a number of years without ordinary managerial error being made synonymous with national heresy. The telephone men in the United States know how easy it is to make mistakes with the best intentions in the world, even under American working conditions which are far more conducive to accuracy. The plight of their Russian colleagues, in being thus summarily hailed before the bar of political opinion from which there is no appeal, is another reason for loving America with all the alleged sins of its capitalistic system.

NEW IDEAS AND SHORTCUTS

By RAY BLAIN

Bolt Cutters for Telephone Work

Good bolt-cutters are valuable tools on practically all telephone line jobs although, strange to say, they are seldom used. The average lineman tries to make his pliers answer for bolt-cutters, and then grumbles if they don't last forever.

This small-type bolt cutter can be easily carried in the lineman's belt and a larger size should be available for extra heavy work.

A manufacturer of pliers recently told about a lineman returning a pair of pliers with a request that they be replaced without charge as they had become defective after only 23 years of use. No doubt, had he made proper use of bolt-cutters, the pliers would have outlasted his natural life—and then his son could have asked for their replacement.

In all seriousness, though, modern bolt-cutters should be available for use in all present-day telephone exchanges. At least two, and better yet, three different sizes are suggested. The small size may be carried by the linemen and used to advantage in pole work. The larger size should be available for extra heavy work. One will be surprised at the frequency with which these tools can be used advantageously.

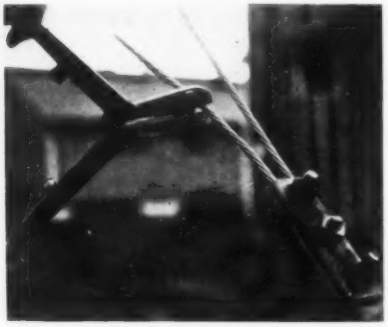
Bolt-cutters will prove most useful for cutting messenger to the proper length on the job. This will prove much better than nicking the strand with a file and then breaking it—the method ordinarily used. Bolt-cutters are also useful for cutting small cables and large wire which is difficult for the ordinarily available pliers.

▼ ▼

Moving a Main Frame

It is true that telephone exchanges are not moved frequently, due to the large expense involved. Occasionally through the natural course of events, they must be moved. When an exchange is moved, a new main frame is as a rule installed in the new location and the old one is generally surplus when the move has been completed.

Frequently faced with this situation we believe the problem has been successfully and economically solved. First a temporary frame is built, which releases the regular frame for re-installation. The old frame is usually in good condition, although in some cases a part of the protectors and terminal strips must be replaced.



Messenger wire can be cut with ease with good bolt-cutters.

To provide the temporary frame, take 1-inch by 4-inch boards of soft pine and drill two rows of holes in them, spaced to correspond with the fanning strips of the regular frame. Each hole is properly numbered so that it may be identified later for tagging or locating trouble.

One of these boards is erected near the main frame and then a cable pair and a jumper wire is disconnected one at a time. The wires are threaded through the holes and then connected together. When a vertical of the main frame has been cleared, it is removed and the process repeated on the next until the entire frame is clear.

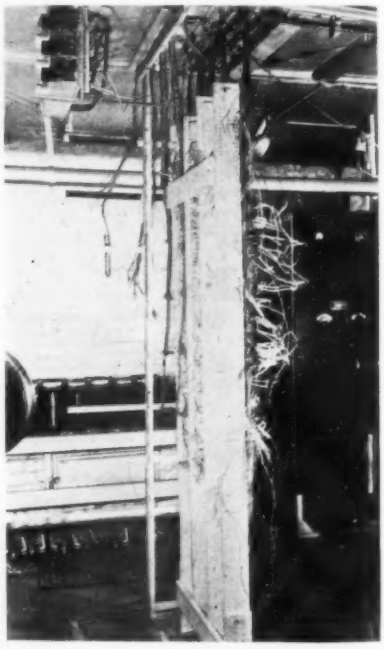
This system has been used with complete success on several central-office moving jobs.

▼ ▼

Proper Pole Storage

The majority of large, medium and some of the smaller companies now purchase all of their poles in carload lots. It must be admitted that this is much cheaper than purchasing a few at a time, although any company which fails to use an entire carload within a short period of time may lose enough, through incorrect storage methods, to offset the savings gained from the quantity purchase.

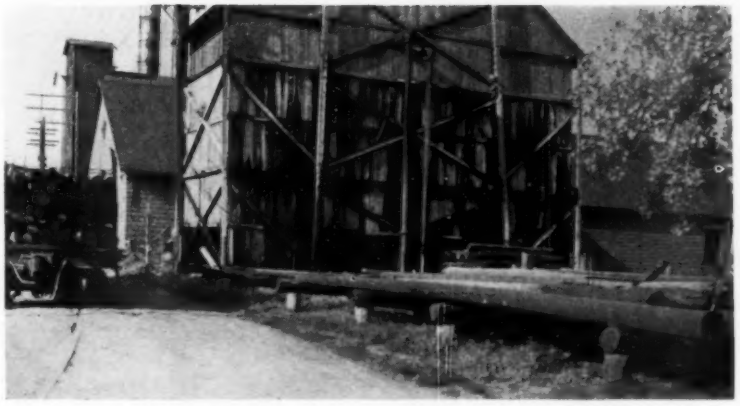
Many companies in storing poles merely lay down a few old poles for skids and then pile the new poles on them. Usually weeds grow around the poles, the old poles settle, come in con-



When it is necessary to move a telephone exchange, the problem of moving the main frame is simplified by providing a temporary frame and properly numbering holes through which the wires are threaded.

WHAT is your "pet kink" or best method of doing a certain job? Why not tell others through this new department?

for Plant and Exchange



Old poles may be used in the construction of a rack for storage of poles.

tact with the ground and decay soon starts. Such careless methods of storing poles often prove extremely expensive.

Old poles may be used to advantage in the construction of a rack which will prove useful in the storage of poles. Short lengths of poles may be set in the ground and cross-members of old poles placed on them to support the load of new poles. If it is possible to erect the rack near a railroad spur skids can be placed from the rack to the car for unloading purposes. The rack will also elevate the poles so they may be conveniently loaded on trucks or pole trailers. The construction and use of one of these racks will soon pay for itself, by lessening the possibility of pole decay.

▼ ▼

Road Grading and Moving Pole Lines

During the past few years increased motor traffic has necessitated widening of many highways. This in turn has caused telephone companies considerable expense due to the necessity of moving their pole lines. A light lead can be moved without any great difficulty but heavy leads generally represent real problems.

When a lead must be moved a hundred feet or more, it is the common practice to set new poles and string new wire, or transfer the old ones. When the lead must be moved only a few feet, the move is often accomplished by digging a trench and moving the poles in an upright position with wires attached. This type of lead-moving is quite simple when a line-construction truck, equipped with a winch and derrick, is available. When such equipment is not on hand, the moving can be made easier by digging the trench so that it slopes down to the new location.

We know of one resourceful telephone man who recently avoided moving a heavy lead—for the present at least—by inducing the state highway department to leave a small island of earth around each pole. Erosion in the near future will no doubt force the moving of these poles. The scheme is a temporizer only, for the poles will have to be moved eventually.

Telephone companies, faced with the necessity of moving any amount of pole-line, will save considerable time and money by acquiring the services of a properly-equipped line construction truck.

▼ ▼

Small Exchange Paging System

Why don't small exchanges have one or more loudspeakers installed on prominent street corners to be used in locating parties for long distance, also doctors, policemen, etc., writes James F. Brady, manager of the Brady Telephone Co., Hamilton, Ga.

It is believed that this arrangement would save considerable work and time of the operators in locating these parties over the usual method of calling several different telephones.

▼ ▼

New York Telephone Co.'s June Station Gain

The New York Telephone Co. had a net gain of 5,449 telephones in service during June, compared with a loss of 1,695 instruments in June, 1938.

For the first six months of this year the company had a cumulative net gain of 54,743 telephones in service compared with a net gain of 13,462 in the corresponding 1938 period.

One telephone man avoided the moving of a pole line temporarily by inducing the state highway department to leave an island of earth around each pole.

Only the mo

The Type 40 Self-Contained Desk Monophone

The Type 34A3 Self-Contained Desk Monophone, arranged for manual use

The Type 35A5 Wall Mounting Monophone, equipped with dial

nOPHONE—

ives you such Beauty, Performance and Long Life

Name the qualities that telephone users and operating men like most in a telephone. In the nophone, you'll find them all!

The Monophone has true streamlined beauty — a smoothness of molded contour that is not only asing to the eye, but has practical value too — there are no easily broken projections.

In voice transmission and reception, the Monophone's performance is superlative—its "all-positions" nsmitter coupled with perfectly balanced induction coil and circuit, give truly life-like reproducton.

Ruggedly built of finest materials throughout, Monophones stubbornly resist the wear and tear of ily use. Their unusually long useful life makes them the most economical telephone that you can ssibly buy, with maintenance and upkeep costs reduced to a negligible figure.

All in all, the Monophone represents a value that you can't afford to overlook. May we send you ces and descriptive details? Write for them — today!

AUTOMATIC ELECTRIC

MAKERS OF TELEPHONE, SIGNALING AND COMMUNICATION APPARATUS
ELECTRICAL ENGINEERS, DESIGNERS AND CONSULTANTS

Distributors in U. S. and Possessions:
AMERICAN AUTOMATIC ELECTRIC SALES COMPANY, 1033 W. Van Buren St., Chicago, U. S. A.
Export Distributors: AUTOMATIC ELECTRIC SALES COMPANY, LIMITED

The Sub-Base Monophone, for "two-line" operation

The Type 1-A Monophone, for use with separate bell box

Position of Independent Telephony

On Wages and Hours

IT IS REPORTED, upon what seems to be good authority, that one strong objection to amendments at this session of Congress to the federal Wage-Hour law (which amendments would make the law more workable) is the desire of some interests to leave the law as unworkable as possible—and thereby make the situation so impossible that the entire law can be repealed at the next session of Congress.

It needs to be said here and now that this is *not* the position of the Independent telephone companies—or, so far as we know, of any company engaged in supplying telephone service.

AN IMPORTANT element in the comparatively rapid building of the present great telephone industry in this country, has been the splendid relations that have existed, throughout the growth of the business, between the many companies and their employes in the diversified work of telephone operation.

Labor trouble in the telephone industry has been negligible throughout the history of the business. This is largely because the telephone industry was one of the first to recognize—and has been one of the foremost in continuing to understand—that a business, to be successful, must be fair to its employes. Men and women do not remain for years in a company's employ unless they are well treated—and the telephone industry is proud of the long service records of its employes.

There has been as nearly a partnership between employes and management in the telephone industry as seems possible in any business.

There have been numerous cases where the management of a telephone company has faced the dissatisfaction of the company's patrons and the task of convincing a state public service commission that the company needed higher rates, entirely for the purpose of using the additional money to pay higher wages to employes.

Telephone companies want to pay liberal wages. They know that satisfied employes mean better service and, therefore, satisfied subscribers.

There was no need for a federal Wage-Hour law—there is no need for state wage-hour laws—to take care of the employes of telephone companies wherever and whenever the income of the company makes possible the payment of wages named in the law. The whole and only difficulty with the federal Wage-Hour law is that in its enactment, unfortunately, Congress did not recognize the fact that, as to small telephone exchanges, the small companies cannot possibly pay out for wages or for any other expense more money than they can take in.

THE UNITED STATES Independent Telephone Association, which through its special wage and hour committee has been placing the situation of the small telephone exchanges before Congress since early last January, has never suggested nor proposed that the entire law be repealed. On the contrary, the association has time after time stated that its position is that every telephone company which can meet the terms of the law should do so.

The association and its committee have had but one thing in mind: To show those who could do something about it, that small telephone exchanges cannot meet the requirements of the law and should, therefore, be exempted from such requirements.

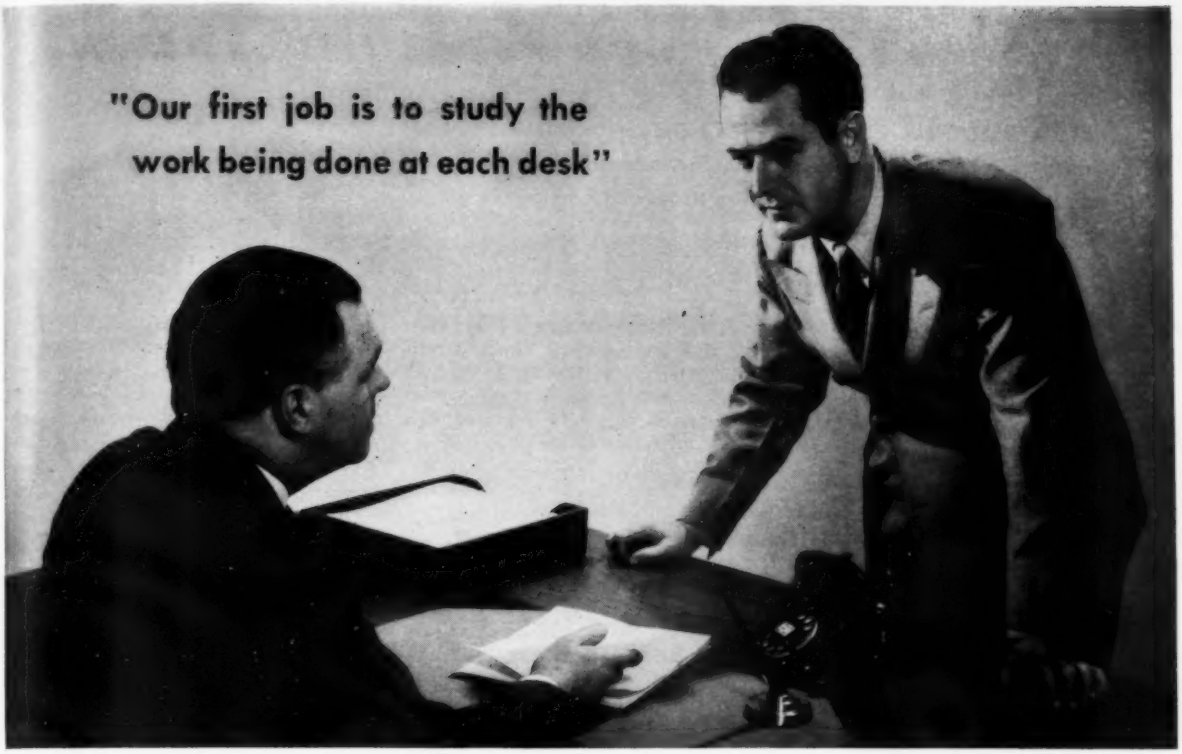
This has been and is the position of Independent telephone companies.

It is only fair to say in this connection that the position of these companies not only is well known to the wage and hour division of the Department of Labor, which division is administering the federal Wage-Hour law, but the representatives of the Independent companies have had sympathetic and understanding treatment on these matters from Elmer F. Andrews, the administrator, and his staff.

MUCH COULD be said about the difference between the treatment Independent telephone people have had from Administrator Andrews, and the treatment they had from various administrators in NRA days. In the latter instance representatives of the telephone associations were in many cases informed to the effect that the small telephone exchanges had better get busy and comply with the rulings made—or else!

In contrast, Mr. Andrews' attitude is that of recognizing the facts of the situation, and of undertaking, as best he can, to determine what he and his staff can do to help the telephone people meet it.

Mr. Andrews is not opposing the proposed exemption from the law of telephone switchboard operators in exchanges of 500 stations or less. Only Congress, however, can actually grant that exemption. It is hoped that Congress will do that yet, even though the present session is drawing to a close. And it should be understood by everyone interested that telephone people have *not* tried to kill the Wage-Hour law; they have asked, and are asking, only for such moderate changes in it as will let the small exchanges continue in business.



To solve the Hours Problem in the office eliminate these handicaps

EXPENSIVE BOTTLENECKS If any department or individual is obliged to be inactive when work "clogs" at some other point, the cause of the bottleneck should be discovered. A slight change in equipment or routine may insure a more even flow of work.

ANNOYING PEAK PERIODS If sales, purchases, costs, and other figures are merely recorded from day to day, peaks arise when employees must rehandle the figures to write customers' statements, take a trial balance, analyze accounts, or complete statistical reports. Recent machine developments make it possible to iron out peaks by eliminating costly rehandling of figures.

UNNECESSARY DUPLICATIONS Duplication of media or records in a separate operation takes time and creates the possibility of errors. If unproductive intermediate steps are required to fit the work to the present machines or system, investigate "direct-to-final-results" methods.

NEEDLESS OPERATIONS Studying the work at each desk may reveal how a few short-cuts would save thousands of needless operations on your figuring, form-writing and statistical work.

SEND FOR THIS BOOKLET!

For the executive concerned with the problem of conserving clerical hours, this new booklet contains many specific suggestions for readjusting office routine. Send for your free copy.

Burroughs will be glad to help you make a desk-to-desk survey of your present office routine. Call your local Burroughs office, or, if more convenient, write direct to—
BURROUGHS ADDING MACHINE CO., 6847 SECOND BLVD., DETROIT

Burroughs

REA Wins Texas Case on Appeal

JUDGMENT OF LOWER COURT, in REA inductive interference suit, reversed and case remanded for determination of one issue. Texas Telephone Association to seek rehearing by Texas Court of Civil Appeals

THE TEXAS Court of Civil Appeals at Austin, on July 12, reversed the judgment of the trial court in the case of McCulloch County Electric Cooperative, Inc., v. W. O. Hall, owner and operator of the Hall Telephone Co., Lohn, Texas (TELEPHONY of June 4, 1938). The court remanded the case for the purpose of determining if there is a reasonably safe and practical method by which the electric cooperative group can construct its power lines so as not to interfere with the grounded telephone line.

Associate Justice M. B. Blair, who wrote the decision, in discussing interference said: "The law is settled in Texas, the United States and in England that there is no liability for induction and conduction with a telephone line by a high-power transmission line, in absence of negligence, malice or unskillfulness on the part of the interfering transmission line or agency; and no extended discussion need be made of this question."

Grounded Line System in Ordinary Use in Texas

Stating that the system of the Hall Telephone Co. is of the grounded type Justice Blair continued: "This type of telephone system is that in ordinary use throughout rural areas in Texas. Although it is not in the best state of repair, it is reasonably serving the needs of its patrons and is the most economical system, both with respect to the construction and operation.

"It is susceptible of interference by induction and conduction of electricity escaping from high-voltage electric transmission lines where they are operated near each other or run parallel for any substantial distance, and particularly so by conduction where both employ the ground contacts, with returning electric current flowing through the grounds."

The court described the multi-grounded wye type construction employed on the McCulloch County electric system and the effect upon the telephone system unless it were metallicized.

"It will cost much less to change the telephone system so that it will not be susceptible to induction and conduction interferences by the grounded power line," the court stated, "than it will cost to build the power line so that its current would be isolated from the ground and so as not to interfere with the grounded telephone line. These conditions will exist and relate to the portion of the telephone line across the road and parallel to the power line."

After considering the matter of negligence in respect to the contention that the electric cooperative should have used a "balanced circuit" system and that it should have built its lines farther from the telephone line, the court continued:

"We hold that appellee failed as a matter of law to establish any negligence in the construction of the power line of appellant; and that in the absence of negligence in the construction of its power line, there is no liability on the part of appellant for the induction and conduction interferences complained of."

Declaring the finding of the jury—that there is no reasonably safe and practical method by which appellant could construct its high-power line so as not to interfere with the telephone line—is not entirely clear, the court discussed what was the jury's intention and summed up its findings as follows:

"The appellant conceded liability for expense of removing the telephone line from beneath its wires; that is, the portion of the telephone line over which the power line was built, and from which grave dangers arise with respect to safety of the employes working on the telephone line, and to the property and patrons of the telephone line who might be injured by electricity escaping from, or from contact with, the high-power line.

By pleadings, appellant offered to remove or bear the expense of removing the telephone line from beneath its high-power line. This will protect or compensate appellee for any right of prior occupancy of the public road with his poles and wires, and will alleviate any unnecessary injury that may have been occasioned by construction of the power line over the telephone line, or in such close proximity thereto as to unnecessarily interfere with the telephone line and to occasion the grave dangers pointed out.

This issue was not determined on the trial, and the judgment of the trial court is reversed and the cause remanded for the purpose of determining this issue, which under our above conclusion is the only issue left to be determined."

Jury Trial Resulted in Victory for Telephone Interests

The case which was brought by W. O. Hall, owner and operator of the Hall Telephone Co., serving subscribers in the vicinity of Lohn, Texas, against the McCulloch County Electric Cooperative, Inc., asked that damages of $5,500 be paid to it prior to the energization of the power system.

The lower court's decision was announced May 20, 1938, after a four-day hearing before a jury. Engineering and other testimony for the plaintiff was given by well known transmission engineers and officers and directors of the Texas Telephone Association.

Finding for the plaintiff, the lower court restrained the defendant from energizing its electric transmission and distribution lines in the vicinity of the telephone lines of the plaintiff until it had paid into the registry of the court the sum of $1,910 to be paid to the plaintiff, W. O. Hall, for metallicizing such lines as would suffer from inductive interference as a result of the energizing of the defendant's power distribution lines.

After the decision of the lower court the case was placed on appeal by the McCulloch County Electric Cooperative, Inc. and on May 8, 1939, the case was argued by the attorneys for the telephone company and the attorneys for the cooperative.

As soon as the case was decided by the Court of Civil Appeals, July 12, the directors of the Texas Telephone Association were requested to give their reactions to the decision. From the discussions thus received and attorney's suggestions, it has been decided to file a motion for rehearing with the Court of Civil Appeals. Since that court adjourned July 22, for a vacation period, the motion for rehearing will not be acted upon until the latter part of September or the first part of October.

IN 1895.... and in 1939

On April 1, 1895, a new Toll switchboard especially designed for the purpose, was equipped with 20 Calculagraphs and opened for service in New York City.

From this start, the use of the Calculagraph for making a printed record of "Elapsed Time" on which the charge for service is based spread rapidly throughout the United States and Canada. Today in every country in the world where there are telephones and toll lines, the Calculagraph is recording the elapsed time.

The New Model 33 Calculagraph

Write for detailed information

CALCULAGRAPH COMPANY
310 SUSSEX ST.
HARRISON, N. J.

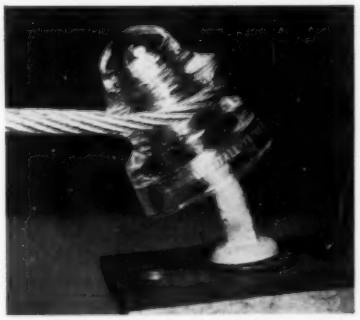
CALCULAGRAPH

THE ELAPSED TIME RECORDER

STRONGER

by test

than its supporting pin



Transverse test by Electrical Testing Laboratories proves strength of Whitall Tatum No. 5 "D. P." *(Illustrated from unretouched photo.)*

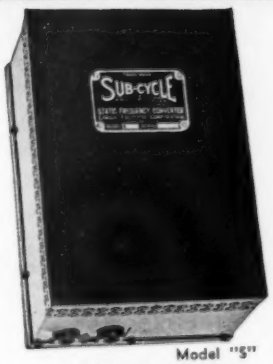
Armstrong's Insulators are made of tough, improved glass to withstand heaviest loads

UNDER test, and in actual use, Whitall Tatum brand Glass Insulators have proved stronger than their supporting pins. Over 100 years of experience and skilled research in glass technique have resulted in the development of more rugged, more accurately shaped insulators. For specifications and further details, see your own distributor or jobber. Or write for samples and prices to Armstrong Cork Company, Insulator Department, 295 Fifth Avenue, New York City.

ARMSTRONG CORK COMPANY
INDUSTRIAL DIVISION
Lancaster Pennsylvania

SUB-CYCLE

The MASTER Ringing Converter



Model "S"

PRICE $45.00

Other Models 20 or 50 Watts Output
ALSO PULSATORS
Prices $55.00 to $113.50

DESIGNED AND PRODUCED UNDER PROGRESSIVE SUPERVISION

●

NO MOVING PARTS

NO VIBRATING CONTACTS

NO ROUTINE MAINTENANCE

NO RADIO INTERFERENCE

●

Write for Booklet

LORAIN PRODUCTS CORPORATION
LORAIN, OHIO
Sold by Leading Distributors
Address Foreign Inquiries to Automatic Electric Sales Co. Ltd., Chicago, Ill.

Here and There in the Field

Billboards Used to Advertise Long Distance

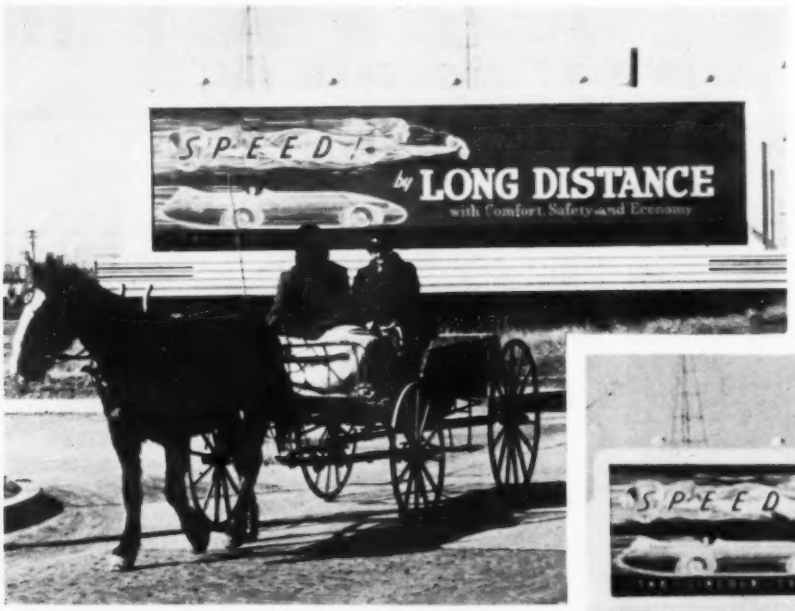
The Lincoln Telephone & Telegraph Co., Lincoln, Neb., recently added billboard advertising to its campaign to bring long distance service to the attention of business men in southeastern Nebraska. The board pictured in the accompanying illustrations has a blue background, white figures, and orange and white lettering, a color combination which has proved strikingly effective and which can be seen by passing motorists at a distance of approximately a half mile.

The board is used in Lincoln on a rotating basis—something new in the outdoor advertising business. By cooperating with five other Lincoln firms, the telephone company is given two months' display during a period of one year in each of six choice locations at the main entrances to the city and in the downtown district which are presumably traversed by traveling salesmen. Only one board is painted for each firm—the painting being done on removable panels. The design is from an original sketch prepared by Joe Hartley, commercial department artist of the Lincoln company.

By taking advantage of this plan, it is possible for the advertising to be displayed in the city's more strategic locations at a very nominal monthly cost.

"Like many forms of advertising today, we have no proof that the use of billboards will increase our long distance business," said H. F. McCulla, general commercial superintendent. "However, we feel it is a splendid supplemental medium through which we may place before the traveling business man, at a time when he is in a most receptive mood, the speed, accuracy and low cost of traveling by telephone in comparison with the cost of traveling by automobile.

"It is logical to presume that an advertising message displayed 24 hours a day will attract and influence more people than one which is displayed and read only once."



The speed of long distance telephone service is now being featured in billboard advertising of the Lincoln (Neb.) Telephone & Telegraph Co. The top photograph showing the horse and buggy is an excellent contrast between an outmoded form of transportation and the extreme modernity of the streamlined telephone sign, but part of the lettering on the sign does not show due to its color. The right view clearly shows the message, "You get there first by LONG DISTANCE with comfort, safety and economy," and the company's name is given below.

Michigan Bell Pays Taxes Early to Help State

To help meet pressing cash difficulties of the state of Michigan, a $1,520,246 tax payment was made by the Michigan Bell Telephone Co. June 15, 15 days ahead of schedule. The payment was the first half of a $3,040,493 state property tax, due July 1. The second half is due October 31.

President George M. Welch, of the company, approved advancing the payment two weeks to assist in meeting the $5,000,000 state treasury deficit and to take care of payrolls, welfare needs, etc., falling due prior to June 30. Frank L. Hall, tax attorney for the company, made the settlement.

Mr. Hall revealed that the total taxes of the Michigan Bell company for 1938 amounted to $5,454,000, an increase of 7⅔ per cent over the $5,046,000 for the previous year. In addition to the state property tax, the total embraces the following levies:

Federal income and capital-stock taxes, $1,822,000; social-security taxes

During a recent storm near Plymouth, Ind., the high wind uprooted this tree and tossed it into telephone wires. Almost immediately a telephone lineman was on the job to repair the damage.

to the federal and state governments, $547,000; miscellaneous levies, mostly to municipalities on property not used at present in the operation of the company's business, $45,000. The company's total taxes payable this year amount to $8.23 on the average telephone in service.

▼ ▼

Northern Ohio Company Conducts Sales Contest

Employes and officials of the Norwalk district of the Northern Ohio Telephone Co. recently won a trophy for having the highest percentage of sales during the month of May. Under the company's sales-contest program, if a district wins for three consecutive months it will then have permanent possession of the trophy.

The trophy is shaped like a shield and consists of a thick, black walnut base on which is mounted a silver plate showing the territory covered by the company.

▼ ▼

Discontinues Operating Relations with Postal Telegraph

The Postal Telegraph & Cable Co., operated throughout southeastern Nebraska since 1933 by the Lincoln Telephone & Telegraph Co., will resume complete operation of its facilities in the Lincoln company's territory on August 1, according to H. F. McCulla, general commercial superintendent of the telephone company.

New office locations for the telegraph company will be established in Lincoln, Hastings and Beatrice — the only telephone company points in which complete telegraph and messenger organizations were maintained. Conditions over which it had no control — chiefly matters of national legislation and regulation — made it impractical for the telephone company to continue to operate the Postal company's facilities in this territory.

The Postal Telegraph Co. will, however, continue to make use of the telephone system for the receipt and transmission of messages to and from its offices, and telegrams and messenger charges will still be billed on telephone statements.

In addition, arrangements have been made between the two companies for the installation of special reversed charge toll listings at the following exchanges operated by the telephone company: Ashland, Bennet, Elmwood, Seward, Wahoo, Clay Center, Harvard, DeWitt, Fairbury, Wilber, Wymore, Plattsmouth, David City, Geneva, Hebron, Nebraska City, York and Superior. Calls originating at these points will generate a toll call to the nearest Postal office with the charges automatically reversed.

▼ ▼

Longest Direct Communications Line Completed

A brief item in the Moscow (Russia) News of May 22, states that a telephone and telegraph line between Moscow and Khabarovsk, located on the Amur river in eastern Siberia, has been completed. It is claimed that the newly completed line is the longest direct telephone and telegraph line in the world. The line is 8,715 km. (approximately 5,415.19 miles) in length, or 1,813 km. (1,126.54 miles) longer than the line between Vancouver, British Columbia, Canada, and Halifax, Nova Scotia, Canada, which was the longest in the world prior to the completion of the Moscow-Khabarovsk line.

To Stop LIGHTNING Damage

SANDS

TYPE 16 ARRESTER

Compact, Inexpensive and Trouble-Free

You need not worry about lightning damage if sturdy Type 16 arresters guard your substations. For you know this SANDS arrester will safeguard your equipment. And you know why, too.

Nestled inside are two Type 2105 discharge blocks—the famous Sands blocks which ground the line automatically on heavy currents. And they reset themselves after each discharge. You get complete protection—always—and with less attention.

TYPE 16 SPECIFICATIONS

Two Type 2105 Discharge Blocks Mounted in a Heavy Porcelain Base and Covered with a Screw Type Brass Cap. For Inside Mounting.

AUTOMATIC ELECTRIC

TELEPHONE, SIGNALING, AND COMMUNICATION APPARATUS

Distributors in U. S. and Possessions:
AMERICAN AUTOMATIC ELECTRIC SALES COMPANY
1033 West Van Buren Street, Chicago, U.S.A.

Personal Items About Telephone Men

W. F. GOODRICH, who has retired after 32 years' service as secretary, treasurer and manager of the La Crosse (Wis.) Telephone Corp. recently received a certificate as a life member of the Telephone Pioneers of America. It was conferred on him by the directors of that organization in New York "in recognition and appreciation of many years of loyal and devoted service rendered during employment in the telephone industry."

▼

CLIFTON EDWARD McCORMICK, former commercial representative for the Home Telephone & Telegraph Co., Fort Wayne, Ind., has been appointed

The entire telephone experience of C. E. McCORMICK, Fort Wayne, Ind., has been spent with the Home Telephone & Telegraph Co. of which he is now general commercial supervisor.

general commercial supervisor of the company. Mr. McCormick's promotion came as the result of the resignation of Ben C. Schweitzer, who left the company recently to become general manager of the Union Telephone Co., Owosso, Mich.

Mr. McCormick was born in Fort Wayne, Ind., April 1, 1907, and received his early education in the grammar and high schools of Fort Wayne. He attended Purdue University.

Before entering the telephone business he obtained experience which was to give him a good background for his future work, by serving on the editorial staff of the Fort Wayne News-Sentinel and on the sales and announcing staff of radio station WOWO, Fort Wayne, Ind.

His entire experience in the telephone business has been with the Home Telephone & Telegraph Co., in the capacity of commercial representative. His assistant is Edward Kane.

Mr. McCormick is married and has a son about six months old. He particularly likes fishing and golf, and belongs to the Purdue Alumni Association, Forum Club, Fort Wayne Chamber of Commerce, Orchard Ridge Country Club, Y. M. C. A. and Catholic Youth Organization.

▼

ALBERT C. NEFF, general manager of the Champaign Telephone Co., Urbana, Ohio, on July 15 celebrated his 40th consecutive year of service in the telephone business.

He is a native of Champaign county, starting his telephone career in 1899, between terms of teaching and soliciting customers for the telephone company. In 1900, he went to London as a branch manager where he served three years, going then to Kenton, and later back to Urbana, where he has since remained.

▼

EARL W. LUTZ of Circleville, Ohio, manager of the Citizens Telephone Co. for the past 37 years, announced his retirement this month. He observed his 65th birthday Sunday, July 9. Employes of the company presented a radio to him.

Mr. Lutz had been manager of the Citizens company since March 1, 1902, at which time the exchange had less than 400 telephones. Growth of the company necessitated its moving into larger quarters in 1913 and at present the company serves about 3,000 subscribers.

At the time Mr. Lutz became manager there were three exchanges operated by the company—Circleville, Williamsport and Ashville. Mr. Lutz built the Laurelville exchange, opened in 1903.

In addition to his work with the telephone company, Mr. Lutz was assistant chief engineer of the Ohio Public Utilities Commission from May 1, 1916, to August 1, 1918.

Mr. Lutz has been actively connected with various civic organizations and associations of telephone men. He is a member of the Telephone Pioneers of America and the Independent Pioneer Telephone Association. In addition he is a Mason, a member of the Knights of Pythias, the Rotary Club and the Circleville Chamber of Commerce.

▼

EDWARD J. FORD of Fort Wayne, Ind., who has been employed by the Home Telephone & Telegraph Co. for the last ten years, is now collection

EDWARD J. FORD, Fort Wayne, Ind., as collection supervisor of the Home Telephone & Telegraph Co., has charge of revenue accounting and collections for the commercial department.

supervisor in charge of revenue accounting and collections. Edward Kruse has been named his assistant.

June 23, 1909, marks the date of Mr. Ford's birth at Fort Wayne. He attended Howe Military Academy and since becoming associated with the Home company on July 31, 1929, has served continuously in the plant and commercial departments.

Mr. Ford is a member of the Masonic lodge, Lions Club, Y. M. C. A. and the Fort Wayne Chamber of Commerce. He is married and has a four-year-old son, James.

▼

C. DEE EARLY, commercial superintendent of the Portsmouth (Ohio) Home Telephone Co., has gone to Circleville, Ohio, to take over management of the Citizens Telephone Co. upon the retirement of Earl W. Lutz.

LEONARD SNODGRASS goes to Circleville from Grinnell, Iowa, to take the position of auditor of the Citizens company, succeeding the late Fred Miller.

G. E. NOTT has been appointed chief engineer for the Oregon area of the Pacific Telephone & Telegraph Co. with headquarters in Portland. He succeeds D. F. Smith, who becomes chief engineer for the northern California area of the company with headquarters in San Francisco.

Mr. Nott commenced his telephone career as a transmission engineer in Los Angeles in 1920. His most recent assignment has been plant extension engineer for the company for the southern California district.

Mr. Nott is a graduate of the University of Toronto and served with the Canadian signal corps and the Royal Engineers in the world war.

Mr. Smith, who has been the chief engineer for the Oregon area since June, 1935, is active in A.I.E.E. work.

DR. J. O. PERRINE, spokesman for the many research and operating men associated with voice transmission in the Bell System, has been appointed assistant vice-president in charge of lectures and demonstrations of the American Telephone & Telegraph Co.

Dr. Perrine has been associated with the A. T. & T. Co. since 1921 when he left the faculty of Yale University to enter the company's department of research. Since 1925 he has been associate editor of the Bell System Technical Journal. During recent years he has devoted much of his time to giving popular scientific lecture-demonstrations before colleges, engineering societies, civic clubs and telephone groups in the United States and Canada.

Dr. Perrine holds degrees from Iowa, Michigan and Cornell universities.

Obituaries

JOHN P. LAHR, age 48, district manager of the Beatrice district of the Lincoln Telephone & Telegraph Co., died at his home in Beatrice, Neb., July 9, of heart disease, after an illness of six months.

Stationed at Beatrice since February 1, 1934, Mr. Lahr had been in the Lincoln company's employ for 22 years. He entered the service as a combinationman at Weeping Water, Neb., and at various times had been manager of the exchanges at Cedar Bluffs, Weeping Water, Valparaiso, Plattsmouth, Nelson and Hastings.

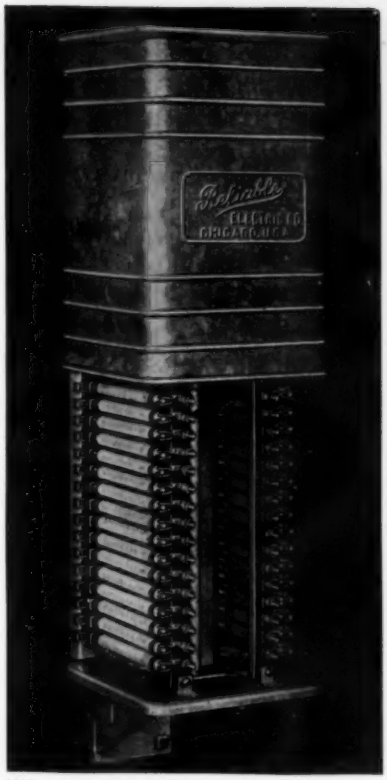
JOHN P. LAHR, Beatrice, Neb., district manager of the Lincoln Telephone & Telegraph Co., died July 9 after a six-months' illness.

Survivors include his widow, Marie; a son, Richard, at home; and a daughter, Mrs. James Smith of Beatrice.

EDWIN H. CATES, for years vice-president of the Richmond (Ind.) Home Telephone Co., died in his home city July 8. He attended Earlham College and Ohio Wesleyan University and at 19 years old entered the bank of his father in Centerville, Ind. Later he helped organize banks in Richmond and Hagerstown, Ind. He was a charter member of the Richmond Elks lodge, a former member of the Union League Club of Chicago. He also carried memberships in the Columbia Club, Indianapolis, and the Queen City Club of Cincinnati.

JAMES A. VAHEY, age 65, one of the foremost authorities in the electrical industry on the location of faults in overhead and underground transmission and distribution systems, inventor of the Lundin (now Vahey) fault locater, a radio interference locater and many devices which have speeded up and simplified the correction of interference troubles on wire systems, died at the Cambridge (Mass.) Hospital on July 10, following a brief illness.

For 45 years Mr. Vahey had been identified with the electric light and power industry, and at the time of his death was fault location engineer for the Boston Edison Co. He was widely known in the telephone field in the East.



INSTALL ONLY

"Reliable"

PROTECTED CABLE TERMINALS

"Reliable" B-27 Protected Cable Terminal, features front termination of jumper wires to permit a perfect job of installation in less time and all parts of terminal readily visible for periodic inspection. Individual mounting bracket holds terminal firm and close to pole. Cover designed to resist dents and punctures. Made in 3 types for standard fuses. Sample sent on request for your inspection.

Reliable ELECTRIC COMPANY
OVER 25 YEARS SERVICE TO THE UTILITIES
3143 CARROLL AVENUE — CHICAGO, ILLINOIS

Extra Revenue Assured
with the **NEW**
GRAY TELEPHONE PAY STATIONS

11-J Universal Handset Type

These new pay stations are arranged for use with a wall type or desk type handset telephone. The universal mounting plate is arranged for either wall or shelf mounting and a signal transmitter is mounted within the box to pick up the coin signals. It is not necessary to mechanically connect the pay station to the telephone set, but the signal transmitter must be cut into the handset transmitter circuit. A two conductor cord is required for this purpose. The LD-72 signal transmitter is included with the pay station as standard equipment. Dimensions — 9¾" high, 4⅞" wide, 3⅜" deep—approximate shipping weight 16 lbs.

There are other NEW Gray telephone pay stations. Write today for complete details.

THE GRAY MANUFACTURING CO.
HARTFORD, CONN.

Order Direct or Through
AMERICAN AUTOMATIC ELECTRIC SALES CO., Chicago
GRAYBAR ELECTRIC CO., INC., New York, N. Y.
KELLOGG SWITCHBOARD & SUPPLY CO., Chicago
LEICH SALES CORPORATION, 222 W. Adams Street, Chicago, Ill.
STROMBERG-CARLSON TELEPHONE MFG. CO., Rochester
CANADIAN TELEPHONES & SUPPLIES, LIMITED, Toronto, Montreal, Winnipeg and Vancouver
NORTHERN ELECTRIC CO., LTD., Halifax, Montreal, Toronto, Winnipeg, Regina, Calgary, Edmonton, Vancouver.
Or any other telephone supply house

Financial News and Data

Few Nebraska Companies Break Even

Only 28 of the 114 second-class telephone companies operating in Nebraska paid dividends during 1938, and 98 of their exchanges went into the red so far as meeting operating expenses and fixed charges were concerned. These figures are taken from the summary prepared by Accountants Schnell and Howard from the annual reports filed with the Nebraska State Railway Commission by the companies.

Stated in other words, there were paid in dividends by these 114 companies the sum of $54,757 on $8,820,000 worth of property, not including seven cases where small earnings were reported but not paid out in dividends.

Economic conditions of the farmer are shown by these reports to be largely responsible for the condition of the telephone industry in Nebraska. The 35,000 decrease in the number of telephones in use in the state in the last eight years is largely represented by discontinuances on the farms and in the dependent small towns.

Over 2,000 less farm stations were receiving service on December 31, 1938, although business and city residence stations increased. Further proof is shown by the fact that where at the end of 1937 there were 21,271 stations belonging to the farm mutuals, which sell service at low cost, 12 months later the number had decreased to 19,558.

For purposes of summarizing reports the commission divides the companies into three classes. The first is made up of the Lincoln Telephone & Telegraph Co. and the Northwestern Bell Telephone Co.; the second comprises the other companies except the Class F, which make up the third division. The latter are more or less cooperatives because they are not operated for profit but to hold trade territory for the towns in which they are located.

The book cost of the first group is $41,731,388 and assets of the second group, which numbers 114 companies, some of them with more than one exchange, are $8,820,602. Other figures for this group are: Other assets, $1,329,846; capital stock, $3,281,270; notes and bonds, $2,163,235; depreciation reserves, $2,317,107; surplus and undivided profits, $532,596.

The reports show an investment in telephone property in Nebraska of slightly more than 52 million dollars. Operating revenues of the Lincoln and Northwestern Bell companies were $8,513,678 compared with $8,690,917 in 1937; of the 114 companies, $1,280,939 compared with $1,285,475. Total revenues from operation in 1938 were $9,794,617 compared with $9,986,392. Other revenues of all of the companies dropped from $104,814 to $93,491.

Operating expenses of the 114 companies were $1,050,348, compared with $1,066,952 in 1937. Combined with the Lincoln and Bell companies, operating expenses were $6,995,036 compared with $7,120,380 in 1937. Taxes of the 114 companies totaled $98,381, compared with $90,670. The two large companies paid $1,085,700 in taxes, an increase of $14,000.

Interest payments by the 114 companies totaled $106,081, an increase of $10,000, and total by all companies, $268,147. Miscellaneous charges of $67,017 represented an increase of $34,000. The 114 companies paid $54,757 in dividends compared with $83,221 in 1937.

Stations in service at the end of last year were: Lincoln and Bell companies: Business, 53,349; residence, 98,603; rural, 16,311; total, 168,263. Other companies—business, 10,203; residence, 19,598; rural, 19,047; total, 48,848.

Business stations increased from 63,022 to 63,552; residence stations from 117,034 to 118,201, while rural dropped from 37,441 to 35,358. The two big companies switch for 9,318 farm-line stations and the others 9,197, a total of 18,515, compared with 20,152 for the 12 months previous.

The Class F companies reported capital stock of $536,307; operating revenues of $37,194; taxes, $915; total disbursements, $38,276. More than half the companies did not meet out-of-pocket costs.

These companies serve 661 town stations compared with 650 in 1937; rural stations, 1,033 compared with 1,021; total, 1,694, compared with 1,671; switched stations, 1,043, compared with 1,119.

A. T. & T. Second Quarter Net Greater Than Year Ago

The American Telephone & Telegraph Co. for the quarter ended June 30 reports a net income of $40,303,784, subject to minor changes. This is equal to $2.16 a share on the outstanding stock, as compared with a net income of $37,067,996 or $1.98 a share, in the corresponding period of 1938. A dividend of $2.25 a share was paid in each quarter.

For the sixth months ended June 30 the indicated net income, as compiled from quarterly reports, was $79,880,868, or $4.27 a share, as against a net income of $75,746,315, or $4.05 a share, in the first half of last year. For the 12 months ended June 30 the net income was $156,709,858, or $8.39 a share, as against $168,260,578, or $9 a share, in the preceding 12 months.

The consolidated report of the company and its subsidiaries for the quarter ended May 31 showed a net income of $47,115,557 applicable to the A. T. & T., or equal to $2.52 a share, as against $38,438,931, or $2.06 a share, in the same period of 1938.

For the six months ended May 31 the indicated consolidated net income was $89,399,863, or $4.78 a share, as against $74,681,551, or $4 a share, in the same period of last year. For the 12 months ended May 31 the consolidated net income applicable to the parent company was $168,103,824, or $8.99 a share, as against $161,649,758, or $8.65 a share, in the preceding 12 months.

Walter S. Gifford, president of the company, reported that the average number of Bell System telephones in service during the first six months of this year was 3.5 per cent larger than in the corresponding period last year and that the number of toll and long distance conversations in the same period was 6 per cent larger than in the comparable 1938 period.

The net gain in stations in the six months totaled about 370,000, as against a gain of 133,000 in the first half of 1938. For the second quarter the increase was 155,000, compared with 35,000 in the same period last year, the report stated.

▼ ▼

Net Income in 1938 of Butler (Pa.) Company Under 1937

Revenues of the Peoples Telephone Corp., Butler, Pa., increased $3,297 during the past year, from the 1937 total of $349,172 to $352,469 for 1938. Operating expenses increased from $221,227 in 1937 to $231,099 in 1938. Net income, after deductions of $36,984 for operating taxes and $27,765 for fixed charges had been made, amounted to $56,825, compared with $65,962 in 1937.

Due to a ruling of the state regulatory commission it was necessary for the corporation in January, 1938, to change the period during which discounts were applied to subscriber rentals. Previously discounts were allowed if the bill was paid in the first half of the month in which the bill was rendered. Because of the ruling it became necessary for the company to apply the discount in the period up to and including the tenth day after the month in which the service was rendered. The ruling when placed in force reduced the cash by $22,000 and increased the accounts receivables by the same account. Uncollectible revenues were increased over $2,000 by the change.

The disastrous sleet storm of April, 1938, cost the corporation more than $30,000. Total expenditures to the property were $27,576. Of that amount $8,463 was charged to expense and the balance was handled through the capital accounts.

Exchange revenues of the company increased from $275,708 in 1937 to $284,316 in 1938. Toll service revenues dropped to $53,817 in 1938 from $58,673 in 1937.

Dividends paid on common and preferred stock were the same as paid in 1937. Total common stock dividends paid were $36,984.00 and total preferred stock dividends paid were $13,800.

John H. Wright of Jamestown, N. Y., is president of the company; Arthur O. Black is secretary and general manager; Ralph E. Forsythe, assistant secretary and commercial manager; Earl H. Plaisted, plant superintendent; William H. Cunningham, auditor and Dale T. Winner, engineer.

▼ ▼

Increased Earnings of Pacific T. & T. Co.

Net gain in telephones and net earnings of the Pacific Telephone & Telegraph Co. for the first five months of 1939 showed an encouraging gain that reflected better business in California.

The net gain in May installations was 4,482 as compared with a net gain of 2,021 in May, 1938. This brought the net gain in telephones for the first five months of the present year to 35,446 as against 18,375 for the corresponding period last year.

Toll and long distance calls for the first five months of this year showed a gain of 4.6 per cent over the first five months of 1938. After all charges including taxes were deducted, net in-

ROEBLING
electrical
Wire & Cable

Paper Insulated and Leaded Telephone Cable... 150 Pairs

Telephone Cable... Paper Insulated and Leaded.

★

Telephone Switchboard Cable ... Silk and Cotton Insulated and Leaded.

★

Twisted Pair and Parallel Telephone Wire... Rubber Insulated and Braided (bronze, copper, iron, and Copperweld).

★

Bare Copper and Bronze Wire.

★

Bare Galvanized Steel Wire.

★

Galvanized Steel Strand.

JOHN A. ROEBLING'S SONS CO.
TRENTON, N.J.
Branches in other cities

ONLY A FINE PRODUCT MAY BEAR THE NAME ROEBLING

come figures for the five months ending May 31 stood at $7,668,158—an increase of $1,109,609 over the $6,558,549 for same 1938 period.

Operating revenues were up $49,806,498 as compared to $47,252,081 for the similar period last year. Operating expenses, including taxes, amounted to $40,691,948 as against $39,463,197.

Operating income gained to $9,114,550 as compared with $7,788,884 but miscellaneous non-operating income declined to $29,214 as against $89,402 for the first five months of 1938. Interest charges also showed an increase being $1,475,606 as compared with $1,319,737 for the corresponding period in 1938.

▼ ▼

Mountain States Company's Earnings Decrease in 1938

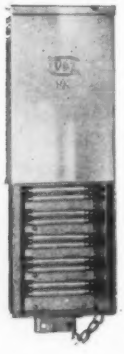
The preliminary report of the Mountain States Telephone & Telegraph Co. for 1938, subject to minor changes when final figures for December are available, shows net income of $3,264,987 after depreciation, interest, federal income taxes, etc. This is equivalent to $6.79 a share on 480,497 shares of capital stock.

This compares with net income of $3,456,178 or $7.19 a share in 1937.

COOK S-X

Protected

CABLE TERMINAL



The Cook S-X is a flat, compact 4, 5 or 6 pair terminal for use where you require just a few subscribers' drops. The S-X employs the Cook perfected method of insulation, protection and cable termination. Drop wire connections and lightning arresters are conveniently located at the front. The S-X is reversible; may be mounted with stub out of top or bottom.

TERMINAL AND PROTECTION EQUIPMENT

COOK

COOK ELECTRIC CO., 2700 SOUTHPORT AVE., CHICAGO

The Manufacturers' Department

National Telephone Supply Co.'s Pacific Coast Office

The National Telephone Supply Co. of Cleveland, Ohio, manufacturer of telephone, telegraph, railroad and light and power line materials, announces the opening of a new Pacific Coast office in San Francisco, Calif.

This office will be in charge of John E. Winchester and will serve the territory from California to Montana and Canada to Mexico.

Mr. Winchester has been a member of the sales organization of the National Telephone Supply Co. for a number of years and is thoroughly conversant with line requirements of telephone and power companies.

▼ ▼

"Three-Wire" Strowger Yields to Modern Strowger

One June 17, the old "three-wire" Strowger automatic switchboard at Richmond, Ind.—reported to be the last of its type in the country—was superseded by a switchboard of the latest Strowger design.

At midnight of that date, the Richmond Home Telephone Co. cut its 32-year old automatic equipment out of service and replaced it with 4,700 lines of new equipment which will serve Richmond's 6,700 telephone stations.

The new automatic switchboard was engineered and built by Automatic Electric Company—the same organization that supplied Richmond with the automatic system in 1907. At the brief cut-over ceremony were Fred Bishop, superintendent of equipment for the Richmond company; Alice Maley, secretary and treasurer; Frank J. Braffet, assistant to President H. R. Lontz; L. J. Gaddis, representing American Automatic Electric Sales Company, and E. R. Neir of National Construction & Engineering Company.

Mr. Bishop gave a short talk describing the new automatic equipment, and then pulled the power switches taking the old equipment out of service. After the line cables to the old equipment had been cut, the temporary insulators were removed from the new switchboard, cutting it into service. Calls came through steadily after the cut-over, despite the lateness of the hour.

The new equipment provides for automatic ringing of subscribers, thereby making it unnecessary to push a manual ringing button, as had been required with the old "three-wire" telephones. The dialing of calls was no novelty to the subscribers, who have been doing it for 32 years.

The new automatic switching equipment was installed by the National Construction & Engineering Company in the same building that has housed the telephone office for many years, and was done without interfering with the service. This accomplishment was made possible by the flexibility which is a feature of the Strowger automatic telephone equipment. The toll board and the operators' restrooms were moved to leased space in an adjoining building to make available space for the new automatic switching equipment.

The removal of the old "three-wire" equipment will provide room for a new Automatic Electric six-position Strowger type remote control toll board which the telephone company officials have purchased to complete the modernization of Richmond telephone service. This new toll equipment will be put into service during the latter part of 1939.

▼ ▼

"Home-Cooler" Fans for Summer Comfort

Emerson-Electric home-cooler fans, designated as "Low Cost Cooling System for Modern Summer Comfort," are illustrated and fully described in a 12-page catalog recently issued by the Emerson Electric Mfg. Co., St. Louis, Mo.

In it is shown a new complete line of single-speed belt-driven home-cooler fans for attic installation, designed to cool an entire home or any desired part plus a stately new home-cooler fan for window installation to cool small homes, apartments, or several rooms of large homes. Illustrations of a number of installations show how the fans operate, how to regulate the cooling for greatest efficiency, and how these fans solve the problem of inexpensive cooling by actually reducing the night temperature 20°.

Fans, plenum chambers, ceiling and outside shutters are illustrated and described with specifications, performance and prices included.

Commission and Court Activities

Latest on Wage-Hour Act Exemption

With adjournment of Congress only a few days away, action upon amendment of the Wage-Hour Act to secure exemption of small telephone exchanges by both branches seems possible as TELEPHONY goes to press. The special wage and hour committee of the United States Independent Telephone Association is in Washington, D. C., battling against time to secure exemption in some form. What the outcome will be, no one can predict.

At an exciting hearing before the House rules committee July 25, Wage-Hour Administrator Elmer F. Andrews, when questioned as to his attitude on exemption of exchanges having 500 stations, replied: "I am in favor of it."

There is so much uncertainty as to what actions may be taken by the committees of the House and the Senate, which have bills under consideration for Wage-Hour Act exemptions, that discussion and details cannot be given at this time. In fact, the fate of the exemption may be settled by the time this is in the hands of TELEPHONY'S readers.

▼ ▼

Pacific T. & T. Sues for Recovery of Taxes

In line with its other suits against cities and counties of California because of alleged over-assessments by the state board of equalization, the Pacific Telephone & Telegraph Co. has filed suits against the cities of Visalia and Dinuba and the county of Tulare, California, for an aggregate total of $19,790.78.

▼ ▼

Demurrers in St. Paul, Minn., Rate Suit Denied

Demurrers of the Minnesota Railroad & Warehouse Commission, attorney general and Tri-State Telephone & Telegraph Co. to an injunction suit which would void the commission's compromise St. Paul rate order issued last May (TELEPHONY, May 13, 1939, page 26), were overruled July 13, by District Judge Gustavus Loevinger in St. Paul.

In a 23-page memorandum, made a part of his order, Judge Loevinger indicated the court would grant the injunction unless the defendants are able to produce new facts to justify the commission's failure to conduct any public hearing prior to its May order and its failure to make any findings of the fact in that order.

If the injunction is granted and upheld by the appellate court, it will void the commission's May 2 order and reinstate the greater reductions ordered by the commission in 1936.

Judge Loevinger said his order does not affect in any way the $1,700,000 of refunds now being made to St. Paul subscribers by the telephone company under the commission's order of 1936.

▼ ▼

Wisconsin Senate Passes Commission Reorganization Bill

Substitution of a single commissioner for the present three-member Wisconsin Public Service Commission now awaits state legislative assembly action after its passage by the senate, 20 to 12. The administration reorganization measure which had been discussed in the senate on 18 different days over a period of more than three months finally was passed July 20.

The bill would abolish the present commission and permit Governor Heil to appoint a single $10,000-a-year commissioner empowered to name three deputies. All employes would be under civil service with the exception of division heads.

Under Governor Heil's reorganization plans, rulings of the one-man public service commission would be subject to review by a proposed three-man board. The bill setting up the board of review, to be composed entirely of attorneys, each paid $7,000 a year, has passed the senate and is now under consideration in the assembly.

▼ ▼

Summary of Commission Rulings and Hearings

Federal Communications Commission

July 13: Certificate issued in the matter of the joint application of Michigan Bell Telephone Co. and Eaton County Telephone Co., holding that the proposed acquisition of Eaton County Telephone Co. by Michigan Bell Telephone Co. will be of advantage to the persons to whom service is to be rendered and in the public interest.

Arkansas Department of Public Utilities

July 13: Southeast Arkansas Tele-

The NEW BATTERY
to meet today's telephone demands

Season after season, month after month, long after the time you expect ordinary telephone batteries to signal feebly for replacement, Ray-O-Vacs carry on, full-powered and hearty. They cost no more--- but how they cut down replacement costs.

RAY-O-VAC COMPANY
Formerly FRENCH BATTERY CO.
MADISON · WISCONSIN

Open-Wire Telephone Plant (Cont.)

The standard tie for copper line wire is shown in Fig. 19-A. The tie wire is a 19-inch length of annealed copper and is placed, as shown in the illustration, so as to hold the line wire firmly in the glass groove. No pliers are required in tying-in copper wire, as the wire is sufficiently soft and pliable to permit its being placed in position by hand.

If due to a change in grade there is a tendency for the line wire to pull out of the insulator groove, the tie is reversed and placed as shown in Fig. 19-B. The reversed position holds it more securely in place.

Iron wire is tied-in with the simple tie shown in Fig. 19-C, using a 12-inch length of either ordinary line wire or a special tie wire which is somewhat softer

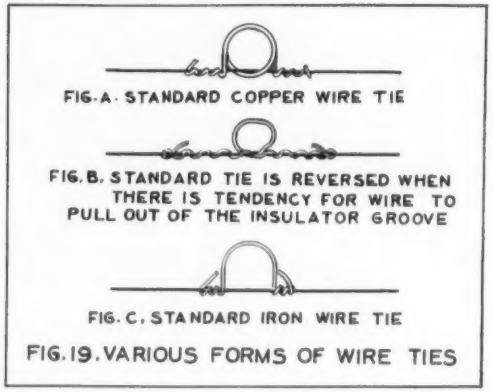
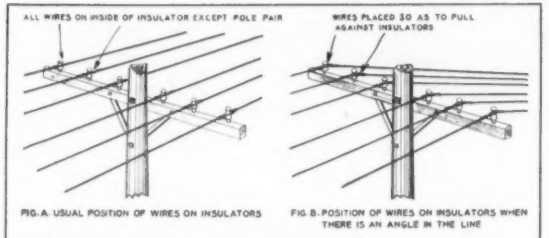


FIG. A. STANDARD COPPER WIRE TIE
FIG. B. STANDARD TIE IS REVERSED WHEN THERE IS TENDENCY FOR WIRE TO PULL OUT OF THE INSULATOR GROOVE
FIG. C. STANDARD IRON WIRE TIE
FIG. 19. VARIOUS FORMS OF WIRE TIES

than line wire. Iron wire is not as easily damaged by the tie as is copper wire; therefore, the simpler tie as shown can be used. Iron wire ties should never be used on copper wire as this would result in damage to the line wire.

It is customary to place the line wire on the side of the insulator nearest the pole on all pin positions except the pole pairs. These should be placed on the side of the insulator away from the pole so as to give


ALL WIRES ON INSIDE OF INSULATOR EXCEPT POLE PAIR
WIRES PLACED SO AS TO PULL AGAINST INSULATORS
FIG. A. USUAL POSITION OF WIRES ON INSULATORS
FIG. B. POSITION OF WIRES ON INSULATORS WHEN THERE IS AN ANGLE IN THE LINE
FIG. 20. POSITION OF WIRES ON INSULATORS ACCORDING TO DIRECTION OF LINE.

greater clearance. This is true except where, due to an angle in the line, the wires tend to pull away from the insulators. In such cases the wires should always be placed so as to pull against the insulators. On crossarm lines the wires should be placed next to the pole so that if they come loose they will fall in behind the insulator. Fig. 20 illustrates the two conditions just mentioned.

The larger telephone companies have made some use of an arrangement whereby a flat tie wire is placed over the line wire for several inches at the point where the wire fits into the groove of the insulator. The wire is then tied-in by the usual method. It is thought that this arrangement protects the line wire from abrasive action and subsequent breaking which takes place where the spans are subjected to undue vibration during storms. This method is generally used with larger sizes of copper wire.

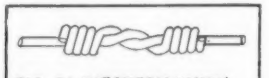
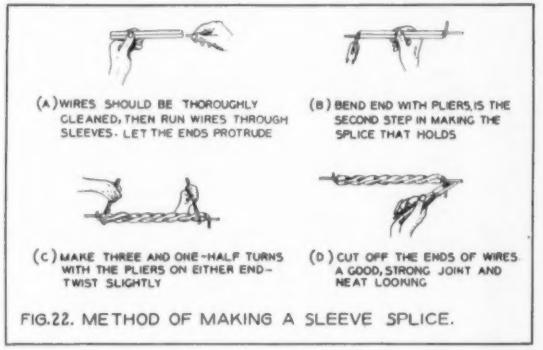


FIG. 21. WESTERN UNION TYPE OF HAND SPLICE NO LONGER RECOMMENDED

In the early days telephone wires were spliced together by what was known as the Western Union splice which was made as shown in Fig. 21. It was soon found, however, that even though properly made the hand splice was very apt to add resistance to the line. It was found that although the wire was perfectly clean and good electrical contact was had at the time

the splice was made, subsequently the splice would become corroded. Then as excessive strain was placed on the line wire, due to storm conditions, it would tend to slip enough to change the contact surfaces and would bring together oxidized surfaces having appreciable resistance to each other.

The hand splice has, therefore, given way to the sleeve splice which is now widely used. Fig. 22 illustrates the several steps in making a sleeve splice. It


(A) WIRES SHOULD BE THOROUGHLY CLEANED, THEN RUN WIRES THROUGH SLEEVES. LET THE ENDS PROTRUDE
(B) BEND END WITH PLIERS, IS THE SECOND STEP IN MAKING THE SPLICE THAT HOLDS
(C) MAKE THREE AND ONE-HALF TURNS WITH THE PLIERS ON EITHER END—TWIST SLIGHTLY
(D) CUT OFF THE ENDS OF WIRES. A GOOD, STRONG JOINT AND NEAT LOOKING
FIG. 22. METHOD OF MAKING A SLEEVE SPLICE.

consists essentially of a double-tube steel or copper sleeve (depending on the type of line wire). The ends of the line wire are inserted in opposite ends of the two tubes and the sleeve is given several twists in opposite directions as shown. It is highly essential in making a sleeve splice that the wire be thoroughly brightened, using a small piece of emery cloth, before inserting the wires in the sleeve. This is to insure good electrical contact.

As stated previously the double-tube twisted-sleeve represented a big improvement both mechanically and electrically over the old hand splice. However, unless carefully made, even the sleeve splice is likely to show an increase in resistance over a period of years. This is due largely to the corrosive effects resulting from moisture which manages to enter the splice.

phone & Power Co. denied authority to abandon its telephone lines from Star City to Cornersville, a distance of 10½ miles.

July 13: Southwestern Bell Telephone Co. authorized to improve its facilities in Springdale by converting its magneto equipment to automatic dial but denied the authority to increase rates. The proposed rates would have added $1,000 a year to the company's revenues.

Illinois Commerce Commission

July 26: Hearing in Chicago on complaint of Attorney Alfred O'Connor, Chicago, as to illegibility and small print in telephone directory provided by Illinois Bell Telephone Co. for use in the city of Chicago.

July 26: Hearing in Chicago on complaint of Illinois Farm Supply Co. as to service furnished by Illinois Bell Telephone Co. in Kingston Mines.

July 27: Hearings in Sprinfield on applications of the Illinois Commercial Telephone Co. for authority to increase rates in Coulterville, Bethany, Chatsworth, Bradford, Evansville, Low Point, Washburn and Fairbury.

Protests have been filed by the village of Chatsworth and by Mayor Geo. Thomas of Coulterville.

Michigan Public Service Commission

July 12: Michigan Associated Telephone Co. authorized to revise Emmet and Goodells local tariffs to substitute four-party service for six-party service at the present charges for six-party service.

Minnesota Railroad & Warehouse Commission

July 21: Garden Valley Telephone Co. authorized to establish and place in effect a new schedule of rates to become effective at its Fosston exchange upon completion of installation of a common battery switchboard. The new rates, representing an increase of 25 cents per month on each class of service, are: Individual, business, $2.75; two-party business, $2.50; individual residence, $2.25; two-party residence, $2.00; four-party residence, $1.75; and, additional charge for handsets, subject to limitations of order M-2247, 25 cents per month. The new schedule also provides that a discount of 25 cents per month be allowed on all local gross rates if paid on or before the 15th day of the month in which service is rendered.

The Garden Valley Telephone Co. serves 42 individual line business stations, 18 two-party business, 60 individual residence, 32 two-party residence, 54 four-party residence, and 334 multi-party rural stations through its Fosston exchange.

The company's net income available to pay depreciation and return on investment for 1938 was $1,762.26. On the basis of the number of subscribers now served the increase in rates will produce an added revenue of $618 per year. On this basis the future net operating revenue for depreciation and return on investment will be $2,380.26.

Ohio Public Utilities Commission

July 17: Warren Telephone Co. authorized to file an optional tariff for the new automatic exchange at Phalanx which the company expects to inaugurate August 1.

The rentals entitling subscribers to Warren service will be: Business independent line $6.25; business, two-party, $5.00; business, five-party, $1.75; business, rural, $1.75; residence, independent, $3.25; residence, two-party, $2.75; residence, five-party, $1.75 and residence rural, $1.75.

July 17: Mansfield Telephone Company authorized to place into effect August 1, a new schedule of rates at its new automatic North exchange. The exchange will be cut in at that time in the Mansfield area, calling for a tariff of $33 per year for rural-business wall or desk telephones, residence rural, wall telephones $27 per year and rural residence desk telephones $30 per year.

July 17: Northern Ohio Telephone Co. authorized to file a new schedule for the new automatic dial service at its Clyde exchange to be inaugurated September 1. The new tariff will be:

Business, independent, $4.25; business, five-party, $3.50; residence, independent, wall $3.00; desk, $3.25; residence, five-party, wall, $2.25, desk, $2.50.

The new tariff will further provide summer rates, PBX rates, etc., including a regulation for half-rentals during two-months suspension of use.

July 17: Authority to revise exchange limits in the Cleveland exchange area granted to the Ohio Bell Telephone Co., on representation it was taking this action at the instance of present subscribers who desire the improved service and prospective subscribers who have not used the service offered by the company until they could have that to be offered under the contemplated changes.

Under this authority there will be added to the Cleveland exchange small portions of adjoining territory on the east in the Hillcrest, Terrace and Montrose exchanges. Small portions of adjoining territory on the south now in the Terrace and Chagrin Falls exchanges will be added to the Hillcrest exchange. It is also proposed to add to the Terrace exchange territory on the east now in the Chagrin Falls exchange.

New boundaries are also authorized for the Terrace exchange base rate area. The Skyline, Sweetbriar and Broadway exchanges in the Cleveland area will be discontinued.

July 18: Secretary certified a report on application of the Star Telephone Co. to revise rates upon the completion of the new automatic exchange at Savannah, as follows:

Business independent, $1.75 to $2.50; business four-party, $1.50 to $2.25; business rural, $1.25 to $2.00; residence independent, $1.50 to $2.25; residence four-party, $1.25 to $2.00; residence rural, $1.25 to $2.00. The new rates entitle the subscriber to Ashland service for which a charge of 25 cents is now made.

The report sets forth that the company submitted a rate base as of September 1, 1928, of $22,582.91 which is carried to October 31, 1938 by the addition of $1,024.87 added plant. The commission's engineers have made a

POLES

B. J. Carney & Co., 100 N. 7th St., Minneapolis, Minn.—Western red cedar poles. Pentrex Butt Treated or Plain.

International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants: Beaumont and Texarkana, Texas.

MacGillis & Gibbs Company, Milwaukee, Wis.—Northern White and Western Red Cedar Poles. Plain or butt-treated. Immediate quotations on request.

T. M. Partridge Lumber Co., Minneapolis, Minn.—Northern White—Western Red Cedar Poles. Plain or butt-treated.

Valentine Clark Corporation, 2516 Doswell Ave., St. Paul, Minn.—Finishd Cedar Poles. Plain or butt-treated.

Western Red Cedar Company, P. O. Box 663, Sandpoint, Idaho.—Plain or butt treated Western Red Cedar poles.

COFFEY SYSTEM
Exclusive Telephone Accountants
Accounting Forms for All Classes Telephone Companies
CENTRAL ACCOUNTING DEPARTMENT
Lemcke Bldg., Indianapolis

Consulting Telephone Engineer
"Modernization of Equipment and Methods for Improved Service"
GARRISON BABCOCK
1104 Third Avenue, Seattle, Washington

J. W. WOPAT
Consulting Engineer
Telephone Engineering
Construction Supervision
Appraisals—Financial
Rate Investigations
1510 Lincoln Bank Tower Fort Wayne, Indiana

Frank F. Fowle & Co.
Electrical and Mechanical
ENGINEERS
35 East Wacker Drive CHICAGO

SLOAN & COOK
CONSULTING ENGINEERS
120 SOUTH LA SALLE STREET
CHICAGO
Appraisals—Original Cost Studies
Depreciation, Financial, and Other Investigations

NOW—ELECTROX
Current Supply Unit for operator's sets at a new low price—$14.85. No batteries needed.
Sent on Trial
Schauer Machine Co.
2060-2068 Reading Road
Cincinnati, Ohio

Classified Section

Rates 10 cents per word payable in advance.
Minimum charge $2.00 for 20 words or less.

HELP WANTED

WISH TO SECURE services of traveling salesman familiar with and capable of selling cable and construction supplies to telephone companies. To work on commission basis. Give age and all experience. Address 8820 care of TELEPHONY.

FOR SALE

FOR SALE: Kellogg 100-line magneto switchboard, 80 drops equipped, 10 pairs of cords, 5 pairs equipped, with repeating coils. Address Inter-Mountain Telephone Co., Bristol, Tenn.

WANTED TO BUY

WANTED TO BUY: Telephone exchange of from 75 to 150 stations. Illinois or Indiana preferred. Address 8823 care of TELEPHONY.

POSITIONS WANTED

IOWA MAN wants short time jobs, switchboard or cable work. Address Geo. A. Bishton, Box 645, Cedar Rapids, Iowa.

POSITION WANTED: Engineer qualified to install and maintain all types of central office and outside plant telephone equipment. 12 years' experience in telephone manufacturing, installation and maintenance. Address 8821 care of TELEPHONY.

AN EXPERIENCED telephone manager wishes position as superintendent of small group of exchanges or manager of single exchange. Experience covers management, construction and maintenance of lines, central office equipment. Thoroughly reliable, competent, and can give best of references. Familiar with F.C.C. accounting. Am in position to locate where opening is available. Address 8806 care of TELEPHONY.

POSITION WANTED: Manager of telephone company, by one who can guarantee results. Address 8783, care of TELEPHONY.

RECONDITIONED
W.E. CO. 2-AA DIALS

Quantity Discounts

1 to 99
100 to 499
500 to 999
1000 to 2500

Letters or numerals

Write for prices.

• • •

BUCKEYE TELEPHONE and SUPPLY COMPANY
COLUMBUS, OHIO

new appraisal of the existing plant as of the same date and find a value of $30,174.04.

The conversion of the plant to full automatic equipment will increase this by $4,628.21.

The audit, the report states, discloses that under the existing rates the operations result in an annual deficit equivalent to 5.72 per cent and that the new rates will produce an earning upon the adjusted value equivalent to 0.11 per cent.

July 19: Village of Nevada filed objections to the valuation placed upon the property involved, the rate structure of the company and to the absence of a showing of toll service agreements as they may reflect upon the operating revenue of the company, as shown in the application of the Ohio Associated Telephone Co. to increase rates in Nevada.

July 19: To the application of Ohio Associated Telephone Co. to increase rates in its Richwood exchange, objections were filed by the village challenging as unjustified the valuation ($82,-339.26) placed upon the local property, also denouncing as uneconomic and not according to sound business principles the investments representing the property, and challenging as exorbitant the operating expenses, except depreciation, which is attacked as excessive and finally challenging as in excess of a fair charge, the personal and real estate taxes.

August 4: Hearing on application of Ohio Bell Telephone Co. for authority to establish a Lowellville exchange with rates which conforming to the rates for the Youngstown exchange will entitle the subscribers to the Youngstown service without toll.

Pennsylvania Public Utility Commission

July 10: Bell Telephone Co. of Pennsylvania authorized to purchase all property and rights of the Harlansburg Telephone Co. The purchase price was set at $590.

July 13: Hearings adjourned until September in the statewide investigation of the rate structures of the Bell Telephone Co. of Pennsylvania.

July 15: Bell Telephone Co. of Pennsylvania filed application for permission to reduce toll charges on Philadelphia and Pittsburgh calls made by subscribers living in certain suburban areas of those cities. If approved the new service will start September 15.

Wisconsin Public Service Commission

July 15: Officials of the village of Ronsholt, Portage county, were advised that a village may by ordinance or resolution require the removal of a telephone line from a street to a suitable location or may require the utility to place its lines under the surface of the street.

The village of Ronsholt has purchased land for a recreation park adjoining a street which will be widened and asked the commission whether it could require the telephone company to move its poles.

July 15: Cecil-Green Valley Toll Line Co. authorized to install a new $12,315 dial automatic switchboard at its Cecil exchange.

July 26: Hearing in Tomahawk on application of Commonwealth Telephone Co. for authority to revise rates at its Tomahawk exchange.